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**The effectiveness of acceptance and commitment therapy (ACT) in
enhancing psychological flexibility in adults: a systematic review**

and;

**Wellbeing in retirement: The role of psychological flexibility,
value-directed living and cognitive defusion**

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Doctorate in Clinical Psychology

The University of Edinburgh

April 2019

Declaration of Own Work

Name: Frances Stuart

Title of Work: The effectiveness of acceptance and commitment therapy (ACT) in enhancing psychological flexibility in adults: a systematic review and;
Wellbeing in retirement: The role of psychological flexibility, value-directed living and cognitive defusion

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Thesis Portfolio Abstract

This thesis aimed to explore the applicability and effectiveness of the Acceptance and Commitment Therapy (ACT) model. The first chapter is a systematic review of the effectiveness of ACT in enhancing psychological flexibility in adults. The review found good evidence from the eleven included studies that ACT treatments are effective. There was preliminary evidence that ACT was more effective than other treatments, but results were not conclusive. Further research using theoretically-consistent measures is recommended. The second chapter is an empirical study exploring the role of ACT processes in retirement. A cross-sectional survey completed by 181 retired people explored value-directed living, cognitive defusion and psychological flexibility in predicting wellbeing, adjustment and distress. Correlation analyses and multiple hierarchical regression analyses were conducted. The psychological factors were found to explain unique variance in these outcome variables, even when the variance from known predictors such as physical health had been accounted for. Psychological flexibility was found to be the strongest predictor of wellbeing, adjustment and distress. These findings need to be replicated in longitudinal research, however they provide initial evidence that interventions aimed at improving psychological flexibility could be beneficial for people in retirement.

Lay Summary

This thesis contains two chapters. Both chapters explore the principles underlying a type of psychological treatment called Acceptance and Commitment Therapy (ACT). The aim of this therapy is to help people manage difficult thoughts and feelings more effectively, and to lead a personally meaningful life. It is thought to work by addressing principles such as psychological flexibility, cognitive defusion and valued-directed living. Psychological flexibility is being able to purposefully adapt to different demands, cognitive defusion is changing the way that we relate to thoughts, and value-directed living is being the kind of person that you want to be.

The first chapter is a review of studies on ACT to see if it helped people to be more psychologically flexible. We looked at studies where adults aged 18 and over were offered either an ACT treatment, an alternative treatment, or were on a waiting list for treatment. In all of the studies the ACT treatments were helpful. The results suggested that although the people who received other treatments also got better, ACT might be the more effective treatment. We do however need more research to be confident of these findings. Overall, ACT appears to be a useful treatment for increasing psychological flexibility.

The second chapter is a research study. The people who took part were all retired and aged 50 or over. The participants filled out questionnaires that measured their level of psychological flexibility, cognitive defusion and value-directed living. The results showed that people who had higher levels of these psychological factors also had higher wellbeing, were better adjusted to retirement, and were experiencing lower psychological distress. We checked to see whether these results could be better explained by other factors such as having good physical health, but this was found not to be the case. The results also showed that psychological flexibility was the strongest predictor of wellbeing, adjustment and distress. This suggests that ACT treatments might be helpful for people experiencing psychological difficulties in retirement, but further in-depth research is needed to confirm this.

Chapter 1. Systematic Review

The effectiveness of acceptance and commitment therapy (ACT) in enhancing psychological flexibility in adults: a systematic review

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Abstract

Background: Previous systematic reviews have evaluated the efficacy of Acceptance and Commitment Therapy (ACT), yet no review has focused on psychological flexibility as a key outcome despite this being a primary objective of ACT. This review evaluated the effectiveness of ACT in enhancing psychological flexibility in adults, compared with other treatments and no-treatment conditions.

Method: A systematic review of the literature was conducted. Databases including EMBASE, Ovid MEDLINE and PsycINFO were searched. Randomised controlled trials (RCTs) of ACT treatments where psychological flexibility was measured with the Acceptance and Action Questionnaire (AAQ and AAQ-II) were included. The methodological quality of each study was assessed and a narrative synthesis of the findings was generated.

Results: This review included eleven studies of individual and group ACT. The quality of the studies was mixed, with some underpowered to detect group differences. However, there was good evidence that ACT enhances psychological flexibility and that treatment gains are maintained. There was emerging evidence that ACT is more effective than other treatments at increasing psychological flexibility, but further good quality research is warranted to draw conclusions.

Conclusions: Although the more conclusive findings were provided by a small number of good quality RCTs, there was promising data that ACT is effective across multiple formats, client groups and treatment intensity.

Keywords

Acceptance and Commitment Therapy;
Systematic review;
Psychological flexibility;
Psychological inflexibility;
Contextual science;
Wellbeing

Highlights

- Evidence suggests that ACT is effective at increasing psychological flexibility in adults.
- There is inconclusive evidence that the effects for ACT are better than other treatments.
- Further theoretically-driven outcomes research is needed in evaluating the effectiveness of ACT.

Declarations of interest: none

Introduction

A number of systematic reviews and meta-analyses have attempted to explore the efficacy of ACT and to compare findings with other psychological interventions. The results have varied between reviews. Ruiz (2012) compared ACT with CBT and reported that ACT appeared to be more effective than CBT, especially in measures of depression and quality of life. Swain et al. (2013) concluded that there was preliminary support for ACT in treating anxiety. Using different criteria, Ost (2014) concluded that ACT is not yet a well-established treatment. A-Tjak et al. (2015) reported that ACT may be as effective as established psychological treatments, but that no significant difference between interventions was found. Of note, however, the authors reported that ACT was superior when evaluating secondary outcomes and process measures. Similarly, Hacker et al. (2016) reported that ACT is an effective treatment for anxiety and depression, but also concluded that there was no advantage to ACT over CBT. The authors remarked however that evaluating ACT on outcomes such as function or quality of life may be more relevant. Overall, both CBT and ACT are found to be effective treatments and there are no clear differences between them in symptom change. Given that CBT is already established as an evidence-based treatment, however, the findings for ACT are not currently sufficient to justify prioritising ACT over CBT.

A limitation of these reviews is that they have been rather restricted in their objectives. Symptom change was previously considered to be the primary aim of psychological interventions, thus reviews have focused on the ability of different therapies to reduce symptoms in order to evaluate their efficacy. In contrast, a key aim of ACT is to reduce the tendency to be overly-focused on symptoms, because this inadvertently exacerbates distress and can lead to reduced functioning (Hayes et al., 2003). Instead, the purpose of ACT is to help people to recognise the function of symptoms in relation to living a meaningful life. To make a comparison of symptom change between ACT and CBT may therefore not be an especially meaningful exercise. While this has been acknowledged by various authors, to date no published reviews reflect this distinction in the main reporting of their findings.

The theoretical model underlying ACT is psychological flexibility (Hayes et al., 2003). Psychological flexibility is defined as being open and aware, having contact with the present moment, and flexibly engaging in actions that are consistent with one's values (Bond et al., 2006). The model refers to six core processes, each of which has a problem manifestation and signifies a process of

change (Levin et al., 2012). The processes are; cognitive fusion/defusion, experiential avoidance/acceptance, loss of contact with the now/present-moment focus, attachment to a conceptualised self/self as context, values problems/chosen values, and inaction or avoidance/committed action (Levin et al., 2012).

Many other types of psychological treatment aim to directly change the frequency or intensity of distressing internal experiences such as thoughts and emotional responses. In contrast, ACT takes the position that suffering is a normal part of the human experience and that it is more adaptive to accept rather than to struggle with difficult experiences. Within this model it is not the internal events that are considered to be harmful, but the person's attempts to remove or control them. The model aims to change how people relate to distressing internal experiences, for instance, to learn that there might be an alternative reaction to being overly caught up in one's distressing thoughts. It is postulated that being more psychologically flexible then allows one to purposely engage with valued behaviours, even in the presence of suffering, which results in leading a more meaningful life (Levin et al., 2012).

It is important to investigate the efficacy of ACT relative to alternative treatments, as ACT may have benefits over other established approaches. For instance, one advantage might be that clients with enduring symptoms are less likely to become despondent if symptoms persist, given that symptom reduction is only considered as a potential by-product of ACT interventions. Instead, it would be expected that treatment would lead to broader changes in psychological functioning (A-Tjak et al., 2015). Additionally, ACT is a transdiagnostic model with wide applicability, and has a strong theoretical underpinning. It also promotes a compassionate and non-pathologising view that people seeking psychological treatment are merely stuck (Strosahl et al., 2004).

Given that psychological flexibility is the key process of change in ACT, it could be argued that psychological flexibility should be one of the main outcomes of interest when evaluating ACT treatments. This is a challenging task for various reasons. The Acceptance and Action Questionnaire (AAQ-II; Bond et al., 2011) is the most frequently used measure of psychological inflexibility. Some authors have argued that psychological flexibility and its opposing counterpart, psychological inflexibility, are not necessarily opposing ends of the same factor, but instead refer to separate constructs of avoidance and acceptance (Rolffs et al., 2016). Moreover, the AAQ-II authors noted that the measure appears to focus on some facets of psychological flexibility at the

expense of others (Bond et al., 2011). Finally, some suggest that while the AAQ-II does measure a unified construct, it may in fact be capturing other constructs such as distress more effectively (Wolgast, 2014; Rolffs et al., 2016). Whether the AAQ-II measures a single concept or an overarching group of factors may not conceptually pose an issue, as the processes in ACT are interwoven, this does pose a problem for how to accurately measure psychological flexibility. Concepts need to be relatively concrete to allow for reliable measurement. Newer measures of psychological flexibility have been developed and are arguably more representative of psychological flexibility as a construct, but they have yet to be routinely used in efficacy research. The opportunity for reviewing outcomes with these measures is currently very limited but would be an important research development in the near future.

Another key outcome for ACT is to measure engagement with values. A previous review (Chauhan et al., 2016) explored this subject and concluded that there was not yet sufficient high-quality evidence to determine whether ACT enhances value-directed living. It was considered that the difficulty in interpreting findings from current research is due to most outcome studies not yet being evaluated with theoretically-driven outcome measures. The authors called for a review to evaluate the effectiveness of ACT in improving psychological flexibility (Chauhan et al., 2016).

Despite complex issues associated with the measurement and definition of psychological flexibility, researchers have demonstrated associations with increased quality of life, lower distress and increased wellbeing (Kashdan & Rottenberg, 2010). Moreover, psychological flexibility has been found to explain additional variance in impairment even when variables such as anxiety, depression and stress have been accounted for (Gloster et al., 2011). This highlights the need for further investigation in to how psychological flexibility may play a unique role in understanding wellbeing and adjustment in both clinical and non-clinical populations.

The aim of this review is to address the unmet need for a review of whether ACT interventions are effective at increasing psychological flexibility in adults, and the extent to which ACT is more or less effective than other treatments or no-treatment conditions.

Methods

Inclusion and exclusion criteria

Studies were included if: (a) the research utilised a randomised control trial (RCT) design; (b) the intervention was an ACT treatment with a duration of at least six sessions and included all core processes of ACT; (c) participants were adults aged 18 years or over; (d) the intervention was delivered in a community or clinical setting, to those with or without mental health difficulties; (e) the study utilised the AAQ or AAQ-II to measure psychological flexibility; (f) the study was reported in English.

Studies were excluded if: (a) the intervention combined ACT with another type of treatment within the same group; (b) the intervention was delivered in a setting not typically available through referral to the general public, e.g. prison settings; (b) the intervention was delivered to those accessing specialist services e.g. addiction; (c) the intervention was delivered to those requiring treatment for complex mental health difficulties, e.g. psychosis; (d) the study utilised a version of the AAQ or AAQ-II adapted for particular groups, e.g. those experiencing chronic pain.

Search Strategy

The search strategy was developed in consultation with an expert librarian. The following databases were searched: AMED, EMBASE, PsycINFO and Ovid MEDLINE via OVID; ASSIA, Social Services Abstracts, Sociological Abstracts, ProQuest Dissertation and Theses Global via ProQuest; CINAHL Plus via Ebsco Host; Scopus and Open Grey. A hand search of Google Scholar, Prospero, Cochrane and the reference lists of relevant papers and included reviews was also conducted. The following search terms were used; “acceptance and commitment therapy” OR “acceptance based” OR “acceptance-based” OR “ABBT” OR “third wave” OR “3rd wave” OR “contextual cognitive behavio*” AND “random* control* trial” OR “RCT”.

Data extraction

The studies were screened against the inclusion and exclusion criteria by the first author. The papers were initially screened by title and abstract to identify and exclude studies where it was clear that they did not meet the inclusion criteria. For papers remaining after the initial screen, full texts were checked firstly for inclusion of an appropriate outcome measure, then for suitability of

intervention type, then for an appropriate design, and finally for relevance of participant group. A data extraction tool was used to collate relevant information from the included studies.

Quality appraisal

All studies were subject to quality assessment by the first author using the Revised Cochrane risk-of-bias tool for randomized trials (RoB2; Savovic et al., 2017). The newest version of the tool released in October 2018 was used. The RoB2 tool addresses five methodological domains through which bias might be introduced. There are three possible risk-of bias judgements for each domain; 'low risk of bias', 'some concerns' and 'high risk of bias'. When using the RoB2 tool, the reviewer decides whether the effect of interest is the effect of assignment or the effect of adhering to an intervention. Given that intent-to-treat (ITT) analyses maintain the benefit of randomisation, this review was primarily interested in the effect of assignment to the intervention. To ensure accuracy in the quality assessment, half of the sample was blindly re-rated by a second doctoral-level researcher. The inter-rater agreement (kappa score 78, $p < .001$) was high (Pallant, 2007). Any discrepancies in scores were discussed and resolved prior to the final ratings for each study being agreed upon.

Data synthesis

Of the eleven identified studies, one article did not provide sufficient data required for this review as AAQ scores were investigated only through a mediation analysis. The lead author was contacted (Craske et al., 2014) and the data was subsequently made available through personal communication. In another study, the required data was not available from the original paper, but a follow-up article did report the relevant findings (Eilenberg, 2017). Another study reported AAQ findings at post-treatment, but follow-up AAQ data was not reported in a further paper reporting the follow-up results (Forman, 2012). The author was contacted but no response was received so it remains unknown whether follow-up AAQ data was indeed collected or analysed.

A narrative synthesis of the findings was conducted to provide a summary of the main outcomes from the studies. This was deemed to be the most appropriate method of comparing results due to the heterogeneity of the studies and the variation in the way treatment effects were reported.

Results

A total of 2,722 studies were identified through the initial database search. After duplicate records were removed, the number of studies was reduced to 1,684. The remaining citations were then screened by title and/or abstract to check whether the study could potentially report an RCT investigating the efficacy of an ACT intervention for adults. This left 212 studies for a full text review to check against the complete list of inclusion and exclusion criteria. The primary reasons for rejecting studies at this stage are listed in Figure 1. The hand search did not provide any additional studies. The final 11 studies met inclusion criteria and were therefore eligible for inclusion in the review.

Characteristics of included studies

A summary of study characteristics is presented in Table 1. All eleven studies included the key features of an RCT in that they featured at least one control group and participants were randomised to interventions

The type of comparators varied. Eight studies used active control conditions including individual CBT (Arch et al., 2012; Craske et al., 2014 & Lappalainen et al., 2007), group CBT (Avdagic et al., 2014), group cognitive therapy (Far et al., 2017), individual cognitive therapy (Forman et al., 2017), and individual relaxation (Twohig et al., 2010 & Zargar et al., 2013). Three used a non-active wait list condition (Bohlmeijer et al., 2011; Eilenberg et al., 2016 & Roemer et al., 2008). One study used both individual CBT and a waitlist group as comparator conditions (Craske et al., 2014).

The target population varied between the studies. Seven studies specifically recruited participants with anxiety disorders including; generalised anxiety disorder (Avdagic et al., 2014; Roemer et al., 2008 & Zargar et al., 2013), various anxiety disorders (Arch et al., 2012), social phobia disorder (Craske et al., 2014), severe health anxiety (Eilenberg et al., 2016) and obsessive compulsive disorder (Twohig et al., 2010). One study recruited participants with a diagnosis of major depressive disorder (Far et al., 2017). One study recruited participants with mild to moderate depressive symptoms (Bohlmeijer et al., 2011). One study recruited participants with either clinically significant depression or anxiety (Forman et al., 2007). Finally, one study was open to anyone interested in receiving psychotherapy, and reasons given for seeking treatment were predominantly related to mood, anxiety or interpersonal problems (Lappalainen et al., 2007).

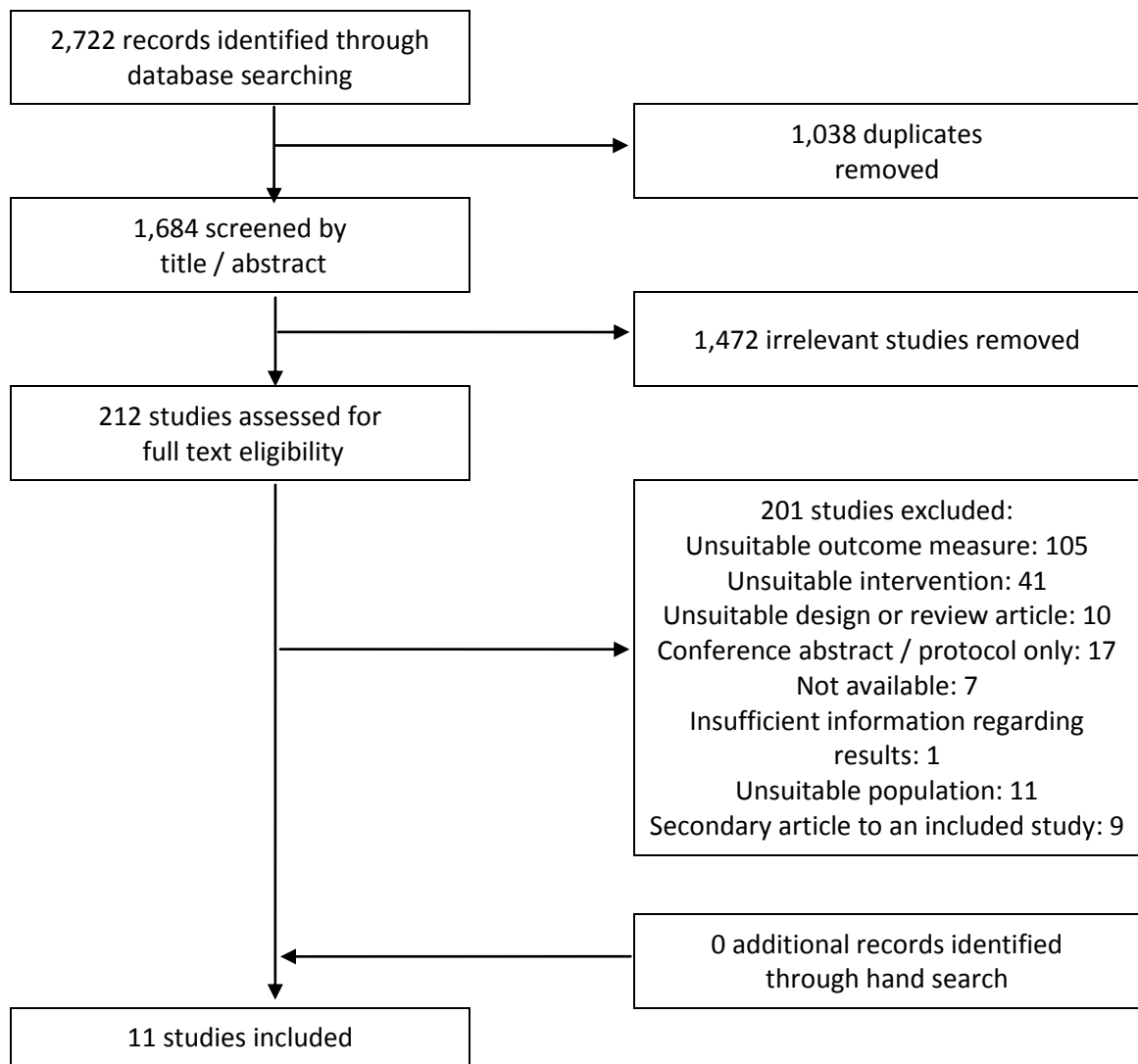


Figure 1. Flow chart of screening process

The age range reported in the studies was 18 to 69 years. Two studies recruited from a student population meaning the samples were predominantly a young adult group (Far et al., 2017 & Forman et al., 2007). Inclusion criteria for two studies stated that participants had to be age 18 to 60 (Arch et al., 2012 & Zargar et al., 2013), and in Eilenberg et al. (2016), only participants aged 20 to 60 were included. Six studies did not report any older age cut-off but the age ranges varied significantly. The least representative samples were in Craske et al. (2014) and Roemer et al. (2008), with mean ages of 29 (SD 6.8) and 34 (SD 11.7) respectively. Studies with the most age representative samples were Avdagic et al. (2014), Bohlmeijer et al. (2011), Lappalainen et al.

(2007) and Twohig et al. (2010), with mean ages of 36 (SD 13.1), 49 (SD 10.7), 42 (SD 13.2) and 37 (SD 15.5) respectively. No studies that specifically recruited older adults met the inclusion criteria for this review.

Gender appeared to be reasonably well balanced in only two studies, with female participants making up 52% and 46% of the sample respectively (Arch et al., 2012 & Craske et al., 2014). All other studies had a disproportionate percentage of female participants, ranging from 61% (Twohig et al., 2010) to 100% (Far et al., 2017 & Zargar et al., 2013).

The format of ACT delivery varied. Four studies delivered group ACT with manual-based sessions (Avdagic et al., 2014; Bohlmeijer et al., 2011; Eilenberg et al., 2016 & Far et al., 2017). Individual manualized ACT sessions were provided in Arch et al. (2012), Craske et al. (2014), Roemer et al. (2008), Twohig et al. (2010) and Zargar et al. (2013). Non-manualized individual ACT was delivered in Forman et al. (2007) and Lappalainen et al. (2007). ACT treatments were delivered by psychology trainee therapists in all studies apart from Avdagic et al. (2014), Bohlmeijer et al. (2011) and Eilenberg et al. (2016), where treatment was delivered by registered psychologists. It was unclear who delivered treatment in Zargar et al. (2013). The least amount of therapist input was provided in Lappalainen et al. (2007) where clients attended 8 to 10 sessions, each lasting an hour. The highest amount of therapist input was provided in Eilenberg et al. (2016), where clients attended ten group sessions, each lasting three hours. The longest treatment duration was provided by Roemer et al. (2008), where clients attended sixteen individual treatment sessions over twenty weeks, in which eighteen hours of therapist input time was provided. Four studies reported treatment being carried out in specialist university-based research clinics (Arch et al. 2012; Avdagic et al., 2014; Craske et al. 2014 & Eilenberg et al. 2016). Two studies were based within university counselling centres (Far et al. 2017 & Forman et al., 2007). The others appeared to be in clinical settings, but this was not always clear.

Nine studies reported follow up AAQ data. These varied between three months post-treatment and one year. Arch et al. (2012) and Craske et al. (2014) provided monthly telephone calls to participants to troubleshoot any difficulties during this timeframe, and participants were also financially compensated for post treatment assessments. Far et al. (2017) and Zargar et al. (2013) did not utilise a follow-up. Forman et al. (2007) reported eighteen month follow up data for some study outcomes but AAQ data was not included.

Table 1. Characteristics of included studies

Study	Intervention and Control Group	Participant Group	Mean age (SD)	Sample size (% female)	Duration (total hours)	Follow-up
Treatment comparison						
Arch et al. (2012) USA	Individual ACT Individual CBT	Adults meeting diagnostic criteria for an anxiety disorder	38 (12.41) 37 (11.19) Range= 19-60	57 (50%) 71 (54%)	12 weeks (12)	6 months; 12 months
Avdagic et al. (2014) Australia	Group ACT Group CBT	Adults meeting diagnostic criteria for GAD	36 (13.1) Range 19-69	25 (72%) 26 (57%)	6 weeks (12)	3 months
Craske et al. (2014) USA	Individual ACT Individual CBT Wait list	Adults with a primary diagnosis of social phobia disorder	27 (5.56) 30 (7.42) 28 (7.08) Range=19-44	29 (48%) 33 (42%) 25 (48%)	12 weeks (12)	6 months; 12 months

Far et al. (2017) Iran	Group ACT Group CT	Adults (female student population) meeting diagnostic criteria for MDD	25 (4.2)	10 (100%) 9 (100%)	6 weeks (12 sessions)	3 months
Forman et al. (2007) USA	Individual ACT Individual CT	Adults (student population) presenting with moderate to severe anxiety or depression	28 (7.25) Range= 18-52	55 (76%) 44 (84%) (80%)	Mean sessions: 15.6 Mean sessions: 15.3	None
Lappalainen et al. (2007) Finland	Individual ACT Individual CBT	Adults experiencing clinical levels of distress (low mood, anxiety, interpersonal difficulties or work distress)	41 (13.81) 42 (12.98)	13 12 (89%)	Mean sessions: 9.1 Mean sessions: 9.6	6 months
Twohig et al. (2010) USA	Individual ACT Individual PR	Adults meeting diagnostic criteria for OCD	37 (15.5) Range= 18-67	41 38 (61%)	8 weeks (8 hours) Plus assessment sessions at pre, post and 3 month follow up	3 months

Zargar et al. (2013) Iran	Individual ABBT Individual AR	Adults (female population) with a primary diagnosis of GAD	35 42 Range= 22-60	9 9 (100%)	Approximately 12 sessions (18 hours)	None
Non-treatment comparison						
Bohlmeijer et al. (2011) The Netherlands	Group ACT Wait list	Adults presenting with mild to moderate depressive symptoms	49 (11.34) 49 (10.07)	49 (86%) 44 (77%)	8 weeks (16 hours)	5 months
Eilenberg et al. (2016) Denmark	Group ACT Wait list	Adults meeting diagnostic criteria for severe health anxiety	37 (9.9) Range= 21-60 36 (7.6) Range= 21-56	63 (73%) 63 (68%)	13 weeks (30 hours)	6 months
Roemer et al. (2008) USA	Individual ABBT Wait list	Adults with a primary diagnosis of GAD	33 (11.05) 33 (11.66)	15 (73%) 16 (69%)	20 weeks (18 hours)	3 months; 9 months

ACT = acceptance and commitment therapy, CBT = cognitive behavioural therapy, CT = cognitive therapy, PR = progressive relaxation, ABBT = acceptance based behavioural therapy, AR = applied relaxation, GAD = generalised anxiety disorder, MDD = major depressive disorder, OCD = obsessive compulsive disorder

Quality appraisal

Ratings of the methodological quality for each of the studies are presented in Table 2. The studies performing best for low risk-of-bias were Twohig et al. (2010), Bohlmeijer et al. (2011) and Roemer et al. (2008). Five other studies also performed well in the quality assessment, but it would appear that insufficient detail in the reporting of the methodology reduced the quality rating in one domain, thus they performed at a slightly lower level overall (Arch et al., 2012; Avdagic et al., 2014; Craske et al., 2014; Lappalainen et al., 2007 & Eilenberg et al., 2016). The weakest studies were Far et al. (2017), Forman et al. (2007) and Zargar et al. (2013).

Randomisation process

Five studies provided detail of the sequence generation process used in the randomisation of participants to groups (Arch et al., 2012; Twohig et al., 2010; Bohlmeijer et al., 2011; Eilenberg et al., 2016 & Roemer et al., 2008). The allocation sequence appeared to have been adequately concealed in three studies (Twohig et al., 2010; Bohlmeijer et al., 2011 & Roemer et al., 2008). The other studies did not specify the methods of concealing allocation from trial personnel. None of the studies were found to have problems with baseline differences between groups, although Avdagic et al. (2014) had missing information regarding the mean age for the different groups. Overall, eight studies were deemed to have some concerns and three to have low risk-of-bias from the randomisation process.

Deviations from intended interventions (effect of assignment to intervention)

In trials investigating the efficacy of a psychological intervention, it is not possible for participants to be unaware of their group assignment. Some studies did however take steps to check whether deviations may have occurred due to knowledge of group assignment. Arch et al. (2012) reported data for attrition and the reasons for drop-out were provided for each client. Forman et al. (2007) reported non-significant differences in attrition between the groups, as well as for participant expectancy effects between those assigned to ACT compared to cognitive therapy. Twohig et al. (2010) ensured that participants had no knowledge of what the alternative intervention was until the study had ended. All of the studies are RCTs and therefore could have reported intent-to-treat (ITT) analyses. Most studies did use an ITT analysis, however Far et al. (2017) and Zargar et al. (2013) did not provide sufficient detail to know whether an ITT was used. Nine studies were deemed to have low risk-of-bias, while there were some concerns about two studies.

Missing outcome data

Nearly all studies either had very limited missing data or carried out analyses to check whether it was plausible that there was a relationship between missingness in the outcome and the true value. In contrast, three studies (Far et al., 2017; Forman et al., 2007 & Zargar et al., 2013), it was either unclear as to whether there could be missing data, or no checks on potential bias in missing data had been performed. Consequently eight studies were deemed to have low risk-of-bias, and three were deemed to have some concerns.

Measurement of the outcome

Due to the nature of this review, all studies used the same outcome measure (AAQ or AAQ-II) which is a self-rating questionnaire. In all cases the degree to which participant self-ratings were likely to have been influenced by knowledge of the intervention is unknown. Some studies conducted checks to see whether there were differences in expectation between different treatments. Forman et al. (2007) found no differences between participant confidence in cognitive therapy and ACT, whereas Arch et al. (2012) reported that after being provided with the rationale for either ACT or CBT, participants rated CBT to be more credible than ACT. It was not clear however whether this would have necessarily influenced their self-ratings on the measures, especially given ACT did not seem to be disadvantaged when it came to outcomes, compared to CBT. All eleven studies were given a rating of having some concerns in this domain.

Selection of the reported result

Eilenberg et al. (2016) was found to be analysed in accordance with a pre-registered plan. Three other studies (Bohlmeijer et al., 2011; Far et al., 2017 & Zargar et al., 2013) referred to the trial being pre-registered, but the record of these either did not provide sufficient detail of the analytic plan to check against what was reported, or the protocol could not be found. Most studies did not provide details of the trial being pre-registered, but there was no evidence from any of the studies to suggest that the AAQ result had been selected from multiple time points or multiple analyses of the data. Avdagic et al. (2014) did not report ITT analyses as fully as the completer analyses, however a non-significant difference between the groups for AAQ had already been reported for the completer sample, so there was no concern in this instance that significant findings were being selectively reported. All eleven studies were given a rating of low risk-of-bias for this domain.

Sample size

Although not specifically addressed by the RoB2, it is important to consider power, especially as no studies were excluded on the basis of sample size. Three studies had a very small sample (Far, et al. 2017; Lappalainen et al., 2007 & Zargar et al., 2013), which increases the risk of a type I or type II error. Lappalainen et al. (2007) identified that their study was underpowered to detect between-group effects, and so these were not reported. Roemer et al. (2008) also had a relatively small sample size, but a power calculation confirmed that it was suitable to detect a large effect sizes. The other seven studies had larger sample sizes, with the number of participants in each condition ranging from 25 to 71.

Overall, the quality of most studies was good. Eight studies had more ratings of 'low risk-of-bias' than ratings of 'some concerns'. One study had slightly more ratings of 'some concerns' than 'low risk-of-bias'. Two studies had fairly poor quality overall, with most domains being rated as having 'some concerns'. Despite this, none of the studies received a rating of 'high risk-of-bias' for any domain.

Treatment fidelity and therapist competence

Issues regarding therapist competence, as well as adherence to the treatment protocol or therapy model are not explicitly addressed by the RoB2 rating scales but need to be considered when evaluating the quality of RCTs. Around half of the studies (Arch et al., 2012, Avdagic et al., 2014, Craske et al., 2014, Forman et al., 2007 & Twohig et al., 2010) randomly selected a proportion of sessions to be audio-recorded and evaluated for degree of adherence and competency. Roemer et al. (2008) rated adherence but not competence. The studies reported that the ratings met the standards expected for all treatments. Lappalainen et al. (2007) did not use observer ratings, but did ask therapists to rate themselves for competence in each therapy. The therapists self-reported having a greater degree of confidence in using CBT, but this levelled out by the end of the study. Bohlmeijer et al. (2011) did not observe sessions but required therapists to self-record adherence to protocol with a checklist. Eilenberg et al. (2016) did not monitor these factors, stating that the treatments were manualised. Far et al. (2017) and Zargar et al. (2013) did not provide any information about treatment integrity or therapist competence.

Table 2. Methodological risk-of-bias ratings of included studies

	a.	b.	c.	d.	e.
Arch et al. (2012)	?	+	+	?	+
Avdagic et al. (2014)	?	+	+	?	+
Craske et al. (2014)	?	+	+	?	+
Far et al. (2017)	?	?	?	?	+
Forman et al. (2007)	?	+	?	?	+
Lappalainen et al. (2007)	?	+	+	?	+
Twohig et al. (2010)	+	+	+	?	+
Zargar et al. (2013)	?	?	?	?	+
Bohlmeijer et al. (2011)	+	+	+	?	+
Eilenberg et al. (2016)	?	+	+	?	+
Roemer et al. (2008)	+	+	+	?	+

a. Bias arising from the randomization process

b. Bias due to deviations from intended interventions*

c. Bias due to missing outcome data

d. Bias in measurement of the outcome

e. Bias in selection of the reported result

+	Low risk of bias
?	Some concerns
-	High risk of bias

*(effect of assignment to intervention)

Effects of interventions

All studies investigated changes in psychological flexibility as measured by the AAQ and AAQ-II (Bond et al. 2011).The findings are summarised in Table 3.

The findings were consistent in that all studies reported an improvement in AAQ scores for the ACT treatments. Six studies reported effect sizes and these varied from medium (Bohlmeijer et al., 2011) to large (Arch et al., 2012; Avdagic et al., 2014; Eilenberg et al., 2016; Roemer et al., 2008 & Twohig et al., 2010). Of note, the five studies reporting large effect sizes were all from interventions where participants were required to meet diagnostic criteria for having an anxiety disorder. In contrast, the medium effect size was reported from a treatment described as an early intervention aimed at those with mild to moderate difficulties. Thus, it might be expected that there would be a smaller degree of change in participants who were healthier at the start of treatment.

For those studies that did not report effect sizes, these were calculated by subtracting the post intervention mean from the pre intervention mean, and dividing this figure by the standard deviation for the pre intervention mean. These effect sizes are indicated in italics (see Table 3).

Nine studies included follow ups to see whether these improvements were maintained. Of these, five reported effect sizes from pre-treatment to follow up. It was found that at three months, six months and nine months, all effect sizes continued to be large (Avdagic et al., 2014; Eilenberg et al., 2016; Roemer et al., 2008 & Twohig et al., 2010). A pre-treatment to five month follow up effect size for Bohlmeijer et al. (2011) continued to be medium. Arch et al., (2012) followed up at six and twelve months. A medium effect size was reported from post-treatment to six months follow up, indicating that there continued to be treatment gains even after the intervention had finished. It should be noted however that Arch et al. (2012) provided brief telephone consultations once a month during the follow-up period. There was no further improvement between the six and twelve month follow-up, but the earlier progress was maintained.

Eight studies compared ACT against an active control intervention. ACT specifically targets psychological flexibility so it was expected that it might be more effective than other psychological therapies at improving AAQ scores.

Six studies utilised CBT as a control intervention. When comparing improvement in psychological flexibility, it was found that ACT outperformed CBT in all studies, although there was variation in the extent of between-group differences. In Arch et al. (2012), both ACT and CBT demonstrated large effect sizes for AAQ. Although there was a greater improvement for ACT, the group x time interactions did not reach significance in the ITT analysis. Nonetheless, at the twelve month follow up of treatment completers, AAQ scores in the ACT group were significantly higher than in the CBT group. Avdagic et al. (2014) reported a large effect size for ACT, compared to a medium effect size for CBT but interestingly the follow up scores for ACT and CBT were equivalent. The time x group interaction was just short of meeting significance. AAQ scores in Craske et al. (2014) appeared to be vastly improved in both groups but especially so in ACT, and these changes were maintained over the following twelve months. In Far, while there was a significant improvement for ACT, there was no change for CBT, but the authors found there was no significant difference between the groups. Forman et al. (2007) reported a significant improvement for AAQ in both groups, and no time x group interaction. Lappalainen et al. (2007) reported a significant improvement in AAQ scores for ACT but not for CBT, both at both post-treatment and at follow up.

Two studies used relaxation as a control intervention. Twohig et al. (2010) reported a large effect size for ACT and a small effect size for relaxation. Interestingly at follow up, while the large effect size for ACT was maintained, continued improvement was seen for the relaxation group, and a medium effect size was found. Twohig et al. (2010) reported a significant interaction between time and group. Data from Zargar et al. (2013) suggests that the groups were not equivalent at the start, with those allocated to ACT having better AAQ scores than those allocated to relaxation. It would appear that AAQ scores improved in both conditions, with those in the relaxation group seeing the greater improvement. However, there was no difference between the groups at post-treatment.

Finally, three studies used a wait list as a control group. As would be expected, those receiving ACT did much better than those who were on a wait list. Data from Bohlmeijer et al. (2011) and Roemer et al. (2008) suggest that there was no change in AAQ scores for those on the wait list. Interestingly, Eilenberg et al. (2016) found that AAQ scores slightly improved for those on the wait list, with a small effect found. However, there was still a substantial difference between groups, with a large effect sizes found for ACT. The surprising improvement for the wait list condition in

Eilenberg et al. (2016) could potentially be explained by the nature of the recruitment and assessment process. Recruitment was by referral but some patients had asked their GP to be referred having read about the treatment programme on the clinic homepage. This might suggest that potential participants were highly motivated and already interested in this type of treatment approach. Those allocated to the wait list may well have accessed information about the treatment or used approaches such as self-care materials independently while waiting. Also, a very extensive psychosocial assessment was undertaken for all participants, and individualised information was fed back. These factors could explain a positive change in psychological flexibility for those who not yet received an active intervention.

It is important to consider the quality of the evidence when interpreting the findings. Evidence from three studies supported the notion that both ACT and CBT are effective in improving psychological flexibility, but that ACT is the more effective treatment (Arch et al., 2012; Avdagic et al., 2014 & Craske et al., 2014). These three studies were among the better quality studies and had large samples. Two studies reported that only ACT is effective in improving AAQ scores, and that CBT had no effect (Far et al., 2017 & Lappalainen et al., 2007). Both studies used small samples however, making it difficult to draw firm conclusions from their findings. One study reported equivalent AAQ improvements for ACT and CBT (Forman et al., 2007) but changes in scores seemed rather small relative to other studies. It was noted that in Forman et al. (2007), treatment was not manualized and was provided by fairly novice therapists. It is possible that there was less emphasis on techniques explicitly aiming to increase psychology flexibility, compared to ACT treatments in most other studies that follow a set protocol, or that are delivered by therapists with more extensive experience in ACT. Overall, these findings cumulatively provide evidence for ACT being a more effective treatment than CBT in enhancing psychological flexibility.

Only two studies used relaxation as a control condition and found both ACT and relaxation to be effective. Twohig et al. (2010) reported that ACT significantly outperformed relaxation. Twohig et al. (2010) was among the better quality studies and used a large sample. Zargar et al. (2013) did not find any difference between the groups. The results for Zargar et al. (2013) need to be interpreted with caution as this study received weak ratings for quality and there were only nine participants in each group. Overall, given the quality of the research, the findings provide evidence that ACT is a more effective treatment than relaxation in enhancing psychology flexibility.

It will be important to consider the nature of the ACT treatments that were found to be most effective. Seven studies reported very conclusive evidence for ACT (Arch et al., 2012; Avdagic et al., 2014; Craske et al., 2014; Twohig et al., 2010; Bohlmeijer et al., 2011; Eilenberg et al., 2016 & Roemer et al., 2008). These included ACT treatments delivered both individually and in groups. Some of these were relatively brief interventions. For instance, Avdagic et al. (2014) provided a six week group and Twohig et al. (2010) provided eight weeks of individual therapy. All of these interventions were manualized, which might also account for greater improvements in psychological flexibility. Many of the therapists were psychology trainees, providing evidence that clinicians with relatively limited experience are able to demonstrate good outcomes.

It is important to also consider associated changes on other outcome measures, to see whether improvements in psychological flexibility occurred alone or whether symptom change was also achieved. For studies comparing ACT and CBT, Arch et al. (2012) found large effect sizes on clinical severity ratings for both treatments; Avdagic et al. (2014) reported large effect sizes for both treatments on symptoms of anxiety and depression; Craske et al. (2014) found that both treatments were effective in reducing clinical severity ratings, with no difference between groups; Far et al. (2017) only found CBT to be effective in lowering symptoms of depression, but this study was too small to be reliable; Forman et al. (2007) found no difference between the treatment groups; and Lappalainen et al. (2007) reported a large effect size for ACT, and a small effect size for CBT in scores for general mental health. For studies comparing ACT with relaxation, Twohig et al. (2010) only found ACT to be effective at improving depression scores. Zargar et al. (2013) did not investigate symptom change. Overall, both ACT and CBT were effective at improving symptoms and clinical severity ratings.

Table 3. Summary of AAQ and AAQ-II treatment effects – means and standard deviations

Study	Pre	Post	Pre-Post Change	Follow-up	Pre-to Follow up Change	Inter-group differences	Outcome measure
Treatment comparison							
Arch et al. (2012) USA	ACT 59.0 (12.4) CBT 58.5 (11.8)	ACT 70.8 (13.1) CBT 69.4 (14.8)	ACT d=1.16 CBT d=.90	ACT 6mth – 72.1 (10.9) 12mth – 71.7 (11.4) CBT 6mth – 68.9 (13.8) 12mth – 68.4 (11.7)	ACT 6mth – d=.63 12mth – d=.10 CBT 6mth – d=.45 12mth – d=.00 (post to 6mthFU & 6mth to 12mthFU)	ITT sample: No significant group x time interactions from pre to post or to 12 month follow-up (p=.08, d = .42). Completer sample: At 12 month follow-up, ACT demonstrated higher AAQ scores than CBT (p= .01, d= 0.56).	AAQ (2000) -16 items -Higher scores are better
Avdagic et al. (2014) Australia	ACT 27.9 (6.9) CBT 28.8 (5.7)	ACT 37.5 (5.3) CBT 33.9 (7.5)	ACT d=1.51 (completers) CBT d=.74 (completers)	ACT 36.1 (7.7) CBT 36.1 (8.0)	ACT d =1.42 (completers) CBT d=.95 (completers)	Significant main effect for time (p<.001) for both the completer and ITT sample, but not for the time x group intervention p=.06 (completer sample).	AAQ (2014) -19 items -Higher scores are better

Craske et al. (2014) USA	ACT 58.6 (11.9) CBT 60.9 (8.1)	ACT 37.9 (14.3) CBT 48.4 (10.1)	ACT <i>d=1.74</i> CBT <i>d=1.54</i>	ACT 6mth - 40.1 (16.1) 12mth – 40.2 (14.5) CBT 6mth - 49.5 (8.9) 12mth – 46.1 (10.6)	ACT Not reported CBT Not reported	Not reported	AAQ (2004) -16 items -Lower scores are better
Far et al. (2017) Iran	ACT 37.4 (6.9) CBT 39.6 (8.8)	ACT 42.3 (10.4) CBT 40.5 (6.9)	ACT <i>p=.03, d=.71</i> CBT <i>p=1.0, d=.10</i>	ACT 44.8 (10.9) CBT 38.8 (11.2)	ACT <i>p=.08</i> CBT <i>p=1.0</i>	There were no significant differences between the groups at pre, post (<i>p=.1</i>) or follow-up (<i>p=.3</i>).	AAQ-II -10 items -Higher scores are better
Forman et al. (2007) USA	ACT 52.6 (6.5) CBT 55.7 (7.2)	ACT 49.7 (7.5) CBT 52.9 (6.54)	ACT <i>d=.45</i> CBT <i>d=.39</i>	n/a	n/a	Main effect for time <i>p<.001</i> . No interaction effect (Time x Treatment Group) <i>p=.89</i> .	AAQ (2004) -9 items -Lower scores are better
Lappalainen et al. (2007) Finland	ACT 29.9 (8.7) CBT 30.8 (8.6)	ACT 36.1 (10.6) CBT 33.2 (11.3)	ACT <i>p<.01, d= .71</i> CBT <i>p>.10, d= .28</i>	ACT 35.1 (10.2) CBT 34.7 (11.0)	ACT <i>p<.01</i> CBT <i>p<.10</i>	Not reported	AAQ (2003) -8 items -Higher scores are better

Twohig et al. (2010) USA	ACT 59.8 (11.4) PR 57.2 (11.7)	ACT 73.7 (13.2) PR 63.8 (7.7)	ACT d=1.06 PR d=.47	ACT 73.4 (14.4) PR 67.1 (10.7)	ACT d=.86 PR d=.64	Significant effect for treatment condition (p< .009); time (p< .001); and their interaction (p= .006).	AAQ (2014) -16 items -Higher scores are better
Zargar et al. (2013) Iran	ABBT 46.7 (10.2) AR 54.2 (5.8)	ABBT 35.9 (13.6) AR 34.6 (11.6)	ACT d=1.06 AR d=3.38	n/a	n/a	No significant differences between the groups p=.47	AAQ -10 items -Lower scores are better
Non-treatment comparison							
Bohlmeijer et al. (2011) The Netherlands	ACT 36.8 (11.3) WL 36.7 (8.6)	ACT 43.0 (8.9) WL 37.9 (8.5)	ACT p=.002, d= .59 WL d=1.4	ACT 44.7 (10.3) WL 38.4 (8.7)	ACT p<.001, d= .66 WL Not reported	Not reported	AAQ-II -10 items -Higher scores are better
Eilenberg et al. (2016) Denmark	ACT 40.2 (19.1) WL 42.1 (23.1)	ACT 55.1 (20.6) WL 44.8 (20.5)	ACT d=0.8 WL d=0.3	ACT 57.9 (18.9) WL 46.4 (20.7)	ACT d=1.0 WL d=0.3	Effect size between groups at end of treatment: d=0.4; and follow up: d=0.5.	AAQ-II (2011) -7 items -Higher scores are better

Roemer et al. (2008) USA	ABBT ITT 72.9 (SE 3.5) Tx Beginners 74.8 (SE 2.4) WL 77.2 (2.1)	ABBT ITT 55.1 (SE 3.3) Tx Beginners 53.2 (SE 2.6) WL 76.3 (2.6)	ABBT ITT p < .001 Tx Beginners d=1.65 WL Not reported	ABBT ITT not reported Tx Beginners 3mthFU 54.0 (2.4) 9mthFU 52.8 (2.2)	ABBT ITT not reported Tx Beginners 3mthFU d=1.63 9mthFU d=1.80	ITT: Condition x Time interactions were significant (p<.001) and had large effect size, d=1.18.	AAQ (2004) -16 items -Lower scores are better
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*AAQ results for Craske et al. (2004) are raw data from personal communication which includes all available data rather than ITT an or completer sample, ACT = acceptance and commitment therapy, CBT = cognitive behavioural therapy, CT = cognitive therapy, PR = progressive relaxation, ABBT = acceptance based behavioural therapy, AR = applied relaxation, GAD = generalised anxiety disorder, Tx beginners = treatment beginners, ITT = intent to treat, completers = treatment completers, AAQ = acceptance and action questionnaire, WL = wait list, mth = month, FU = follow-up, p = p-value, d = effect size as reported, *d* = effect size calculated by primary author, SE = standard error.

Discussion

Summary of main results: the utility of ACT in increasing psychological flexibility

This review aimed to evaluate the effectiveness of ACT in enhancing psychological flexibility in adults compared with other active treatments and wait list groups. The studies all demonstrated a positive effect on psychological flexibility for ACT, as measured by the AAQ. In the majority of studies this improvement was significantly greater than the improvement that occurred in other interventions. Moreover, the studies that followed up participants demonstrated that for ACT treatments, levels of psychological flexibility continued to be better than at the start of treatment. For some studies, this long-term improvement was significantly greater than the long-term improvement seen in other approaches.

Overall, there are still relatively few RCTs investigating the efficacy of ACT in increasing psychological flexibility, and those that were included in this review varied from gold standard trials to exploratory studies with small sample sizes. Accordingly, it is difficult to reliably compare ACT to other active treatments, however from the findings gathered there is certainly very promising evidence that ACT is more effective at increasing psychological flexibility than the other treatments it was compared against.

This area of research is still exploring relatively novel concepts as outcomes, and additional work is required to further develop the evidence base for psychological flexibility. From a theoretical viewpoint there continues to be a degree of uncertainty about the precise definition of psychological flexibility and how best to measure it. Some authors use terms from the ACT model interchangeably, which contributes to the lack of clarity regarding what psychological flexibility is. Moreover, many studies investigate the role of psychological flexibility as a process variable for change in symptoms, rather than as an outcome variable in its own right. This runs contrary to the theoretical underpinning of ACT. Unlike other interventions, ACT does not aim to directly eliminate or reduce symptoms. Instead, ACT aims to foster a state of psychological flexibility, associated with greater self-awareness and acceptance, enabling us to move purposely in the direction of our values.

Furthermore, techniques for measuring psychological flexibility need considerable work. The most commonly used measure is the AAQ-II. There are some validity issues with this measure however. Some authors have argued that the AAQ-II is not a true measure of inflexibility, and instead report that the AAQ is closely aligned to measures of psychological distress (Wolgast, 2014; Tyndall et al., 2018).

This study initially planned not to include the AAQ and AAQ-II as outcome measures, but instead intended to include newer measures designed to be more encompassing of psychological flexibility. These include the CompACT by Francis et al. (2016) and the Multidimensional Psychological Flexibility Inventory (MPFI) by Rolffs et al. (2016). As there were no suitable studies available using these measures however, and the AAQ-II continues to be the measure routinely used clinically and in research, it was decided to utilise the AAQ and AAQ-II as the sole measures of psychological flexibility for this review. Although this potentially poses a problem for reviewing the evidence for psychological flexibility, this is to be expected given that the concept of measuring psychological flexibility as an outcome is still in its infancy. The continued development of new and meaningful tools is very encouraging and as these become more widely used, it is likely that the theoretical understanding and evidence base around ACT will also develop accordingly.

Implications for future research

ACT treatments are designed to increase psychological flexibility on the assumption that this enables clients to then begin engaging in previously avoided behaviours and to live more in accordance with values. Thus, when evaluating the efficacy of ACT, it is most relevant to measure changes in psychological flexibility across treatment, but then during the follow up period to assess the degree change in behaviours towards the direction of valued living. It would therefore be important for studies to include measures of psychological flexibility and valued-directed living as primary outcome measures, and to include long-term follow ups to determine changes in functioning after treatment has finished. Symptom severity such as scores of depression and anxiety might also be of interest, but these could be treated as secondary outcomes. Indeed, a review on the effectiveness of ACT in enhancing values-consistent behaviour reported that further work was required for developing better measures of valued living as well as for psychological flexibility (Chauhan et al., 2016).

The current review was designed to include treatments offered to participants of any adult age. The findings are limited in generalisability however as very few older adults were represented, and several studies only included younger adults or those of working-age. Ross et al. (2018) reviewed the effectiveness of ACT in older adults. Findings for psychological flexibility were reported to be very inconclusive with two out of three studies finding no significant improvements on the AAQ-II at post intervention. However, it was noted that the studies with non-significant findings were deemed to be of low quality. None of the three studies met criteria for inclusion in the current review due to one using an intervention of short duration and the other two studies not including a control group. Thus the evidence base would benefit from further good quality research with participants that are more representative of the population.

Implications for practice

This review provides some good evidence that ACT is an effective treatment for increasing psychological flexibility as measured by the AAQ and AAQ-II. Caution is needed however when interpreting the results. Although ACT appeared to be more effective than CBT at increasing psychological flexibility, none of the four studies reporting post-intervention group differences found a significant time x group interaction. Nonetheless, as discussed, the current research evidence is still in relative infancy, and further theoretically driven studies with large samples, long-term follow-up and psychometrically sound measures are required. Although more research is needed to determine the utility of ACT, the findings of this review are very promising. There is evidence that ACT is effective across multiple settings, for transdiagnostic client groups, in different formats, and also when delivered by therapists of varying experience-level. For instance, although the largest reported effect size was from a study of individual ACT delivered over twenty weeks, the next largest effect size was reported from a six-week group ACT intervention. This suggests that ACT might provide a suitable treatment alternative to CBT, but further evidence is required before any strong conclusions can be drawn.

Strengths and limitations of the current review

Bias may have been introduced by only including studies written in English. This review used only one outcome measure for psychological flexibility. While limiting the review to a single measure provides greater consistency in the results, there is a risk that important findings were missed by excluding a wider range of otherwise relevant studies. Indeed studies that solely utilised a

disorder-specific version of the AAQ and AAQ-II were also excluded. A future review combining a broader range of outcome measures for psychological flexibility would therefore be helpful.

Another issue with this review is that despite using the AAQ/AAQ-II as the sole outcome measure, it has been updated multiple times and therefore the reviewed studies report results from several different AAQ versions. This review includes the AAQ-8, AAQ-9, AAQ-10, AAQ-16 and AAQ-19, as well as the 7-item AAQ-II and the 10-item AAQ-II as outcome measures. In one study the AAQ had been translated by the authors to Persian for use in their own research. Two other studies used the Danish and Dutch versions of the AAQ-II. Furthermore, there appears to be discrepancy in how the AAQ and AAQ-II are being scored. In seven studies the authors specified that higher AAQ/AAQ-II scores indicated greater psychological flexibility, but in four studies it was stated that lower scores indicated greater psychological flexibility. It is therefore difficult to reliably and meaningfully compare the mean scores between the different studies. This also makes it challenging to suggest a clinical cut-off for identifying clients who might benefit from an intervention to increase psychological flexibility. Despite issues arising from using the AAQ/AAQ-II as the outcome measure, there are certainly advantages to this approach. The AAQ in its various versions has been consistently demonstrated to have good reliability and validity, which may explain why it became the routinely used measure of choice in the ACT community.

This review excluded studies where the target population were people with specific or more complex mental health difficulties such as addiction and psychosis. This enabled the review to focus on a reasonably homogenous group, allowing for more accurate comparison of outcomes across different treatment types. Future research is therefore needed to determine whether the current findings generalise to clinical populations with more severe or specialist issues.

Nonetheless, preliminary research that focuses on common or less complex mental health issues is usually beneficial in the first instance to determine suitability and effectiveness of treatment approaches, before trialling and evaluating in more specialist settings or for those with more complex needs.

In addition to clinical population studies, the review also included studies where the target population were experiencing sub-clinical levels of mental health problems. Only one such study with a non-clinical population met the criteria for inclusion. Although a single RCT is not sufficient to provide reliable evidence for the use of ACT as a preventative intervention, it was one of the

better quality RCTs identified. For this reason it was considered important to include it in the study, while also to recognise the ongoing need for further research in the role of ACT approaches in preventative interventions.

One of the methodological strengths of this review is that all findings are from RCT studies. High quality RCTs arguably provide the most conclusive evidence compared to other designs such as repeated measures or case studies. Nevertheless, the current findings need to be carefully scrutinised as there was a great deal of variation in the overall size and quality of the included studies. A rigorous approach to quality appraisal was therefore important for this study, and the high level of inter-rater reliability between reviewers indicates that this was achieved.

To our knowledge, this is the first review to assess psychological flexibility as the outcome of interest. This builds upon other theoretically driven work in developing an evidence base for evaluating the efficacy of ACT. Such developments may help to challenge traditional notions that treatments should be evaluated on their ability to reduce disorder-specific symptoms. There has been a recent shift towards delivering psychological interventions to transdiagnostic groups, which also has the benefit of enabling more people to access evidence-based treatment. Thus building greater awareness of inclusive treatment outcomes, such as psychological flexibility, general functioning or wellbeing, will likely be relevant for a more diverse client population. This review was broad-based in that it included any study where the intervention was available to the general public and to any clinical presentation typically seen in primary or secondary care psychology services. This review therefore has the potential for far-reaching consequences in terms of demonstrating the wide applicability of ACT.

Conclusion

There is currently good evidence that ACT interventions can enhance psychological flexibility as measured by the AAQ and AAQ-II, and that treatment gains are maintained at follow up. There is emerging evidence that ACT may be more effective than other treatments at increasing psychological flexibility, but this has not yet been reliably demonstrated. Further research is warranted and a meta-analysis of the between-group effects may increase power and provide more conclusive findings. Future studies should utilise carefully selected measures of psychological flexibility and valued-directed living. It will be important that studies are sufficiently powered, and

ensure that group differences for psychological flexibility are fully reported as a primary outcome, in order to fully assess the true potential of ACT.

References

- A-Tjak, J. G. L., Davis, M. L., Morina, N., Powers, M. B., Smits, J. A. J., & Emmelkamp, P. M. G. (2015). A Meta-Analysis of the Efficacy of Acceptance and Commitment Therapy for Clinically Relevant Mental and Physical Health Problems. *Psychotherapy and Psychosomatics*, 84(1), 30-36. doi:10.1159/000365764
- Arch, J. J., Eifert, G. H., Davies, C., Vilardaga, J. C. P., Rose, R. D., & Craske, M. G. (2012). Randomized Clinical Trial of Cognitive Behavioral Therapy (CBT) versus Acceptance and Commitment Therapy (ACT) for Mixed Anxiety Disorders. *Journal of Consulting and Clinical Psychology*, 80(5), 750-765. doi:10.1037/a0028310
- Avdagic, E., Morrissey, S. A., & Boschen, M. (2014). A Randomised Controlled Trial of Acceptance and Commitment Therapy and Cognitive-Behaviour Therapy for Generalised Anxiety Disorder. *Behav. Change*, 31(2), 110-130. doi:10.1017/bec.2014.5
- Bohlmeijer, E. T., Fledderus, M., Rokx, T. A. J. J., & Pieterse, M. E. (2010). Efficacy of an early intervention based on acceptance and commitment therapy for adults with depressive symptomatology: Evaluation in a randomized controlled trial. *Behaviour Research and Therapy*, 49(1), 62-67. doi:10.1016/j.brat.2010.10.003
- Bond, F. W., Hayes, S. C., Baer, R. A., Carpenter, K. M., Guenole, N., Orcutt, H. K., . . . Zettle, R. D. (2011). Preliminary Psychometric Properties of the Acceptance and Action Questionnaire–II: A Revised Measure of Psychological Inflexibility and Experiential Avoidance. *Behavior Therapy*, 42(4), 676-688. doi:10.1016/j.beth.2011.03.007
- Bond, F. W., Hayes, S. C., & Barnes-Holmes, D. (2006). Psychological Flexibility, ACT, and Organizational Behavior. *Journal of Organizational Behavior Management*, 26(1-2), 25-54. doi:10.1300/J075v26n01_02
- Chauhan, D., Morris, P., & Ferreira, N. (2016). The effectiveness of acceptance and commitment therapy in enhancing values consistent behaviour: a systematic review. Unpublished thesis, University of Edinburgh (United Kingdom).

- Craske, M. G., Niles, A. N., Burklund, L. J., Wolitzky-Taylor, K. B., Vilardaga, J. C. P., Arch, J. J., & Lieberman, M. D. (2014). Randomized Controlled Trial of Cognitive Behavioral Therapy and Acceptance and Commitment Therapy for Social Phobia: Outcomes and Moderators. *Journal of Consulting and Clinical Psychology, 82*(6), 1034-1048. doi:10.1037/a0037212
- Eilenberg, T., Fink, P., Jensen, J. S., Rief, W., & Frostholm, L. (2016). Acceptance and commitment group therapy (ACT-G) for health anxiety: a randomized controlled trial. *Psychological medicine, 46*(1), 103. doi:10.1017/S0033291715001579
- Eilenberg, T., Hoffmann, D., Jensen, J. S., & Frostholm, L. (2017). Intervening variables in group-based acceptance & commitment therapy for severe health anxiety. *Behaviour Research and Therapy, 92*, 24-31. doi:10.1016/j.brat.2017.01.009
- Far, S., Gharraee, B., Birashk, B., & Habibi, M. (2017). Effectiveness of Acceptance and Commitment Therapy and Cognitive Therapy in Patients With Major Depressive Disorder. *Iranian Journal of Psychiatry and Behavioral Sciences, 11*(4). doi:10.17795/ijpbs-3459
- Forman, E. M., Herbert, J. D., Moitra, E., Yeomans, P. D., & Geller, P. A. (2007). A Randomized Controlled Effectiveness Trial of Acceptance and Commitment Therapy and Cognitive Therapy for Anxiety and Depression. *Behavior Modification, 31*(6), 772-799. doi:10.1177/0145445507302202
- Forman, E. M., Shaw, J. A., Goetter, E. M., Herbert, J. D., Park, J. A., & Yuen, E. K. (2012). Long-Term Follow- Up of a Randomized Controlled Trial Comparing Acceptance and Commitment Therapy and Standard Cognitive Behavior Therapy for Anxiety and Depression. *Behavior Therapy, 43*(4), 801-811. doi:10.1016/j.beth.2012.04.004
- Francis, A. W., Dawson, D. L., & Golijani-Moghaddam, N. (2016). The development and validation of the Comprehensive assessment of Acceptance and Commitment Therapy processes (CompACT). *Journal of Contextual Behavioral Science, 5*(3), 134-145. doi:10.1016/j.jcbs.2016.05.003
- Gloster, A., Klotsche, J., Hartling, S., Hummel, K. V., & Hoyer, J. (2011). Assessing Psychological Flexibility: What does it add above and beyond existing constructs?. *Psychological assessment, 23*, 970-982.

- Hacker, T., Stone, P., & Macbeth, A. (2015). Acceptance and Commitment Therapy – Do we know enough? *Cumulative and Sequential meta- analyses of randomized controlled trials. vol. 190* , pp. 551-565 . DOI: 10.1016/j.jad.2015.10.053.
- Hayes, S. C. (2003). *Acceptance and commitment therapy: an experiential approach to behavior change*. New York; London: New York; London: Guilford Press.
- Kashdan, T. B. & Rottenberg, K. K. (2010). Psychological Flexibility as a Fundamental Aspect of Health. *Clinical psychology Review, 30*, 865-878.
- Lappalainen, R., Lehtonen, T., Skarp, E., Taubert, E., Ojanen, M., & Hayes, S. C. (2007). The Impact of CBT and ACT Models Using Psychology Trainee Therapists: A Preliminary Controlled Effectiveness Trial. *Behavior Modification, 31*(4), 488-511.
doi:10.1177/0145445506298436
- Levin, M. E., Hildebrandt, M. J., Lillis, J., & Hayes, S. C. (2012). The Impact of Treatment Components Suggested by the Psychological Flexibility Model: A Meta-Analysis of Laboratory-Based Component Studies. *Behavior Therapy, 43*(4), 741-756.
doi:10.1016/j.beth.2012.05.003
- Öst, L.-G. (2014). The efficacy of Acceptance and Commitment Therapy: An updated systematic review and meta-analysis. *Behaviour Research and Therapy, 61*(C), 105-121.
doi:10.1016/j.brat.2014.07.018
- Pallant, J. (2007). *SPSS survival manual : a step by step guide to data analysis using SPSS for Windows* (Third edition.. ed.). Maidenhead: Maidenhead : Open University Press.
- Roemer, L., Orsillo, S. M., & Salters-Pedneault, K. (2008). Efficacy of an Acceptance-Based Behavior Therapy for Generalized Anxiety Disorder: Evaluation in a Randomized Controlled Trial. *Journal of Consulting and Clinical Psychology, 76*(6), 1083-1089. doi:10.1037/a0012720
- Rolfs, J. L., Rogge, R. D., & Wilson, K. G. (2018). Disentangling Components of Flexibility via the Hexaflex Model: Development and Validation of the Multidimensional Psychological Flexibility Inventory (MPFI). *Assessment, 25*(4), 458-482. doi:10.1177/1073191116645905

- Ross, K., Whitfield, H., Gillanders, D. & Guzman, A. (2018). Acceptance and Commitment Therapy with older adults: a systematic review of psychological and physical health outcomes. Unpublished thesis. University of Edinburgh (United Kingdom).
- Ruiz Jiménez, F. J. (2012). Acceptance and Commitment Therapy versus Traditional Cognitive Behavioral Therapy: A Systematic Review and Meta- analysis of Current Empirical Evidence. *International journal of psychology and psychological therapy*, 12(3), 333-358.
- Savovic, J., Page, M., Elbers, R., Hrobjartsson, A., Boutron, I., Reeves, B., & Higgins, J. (2017). A revised tool for assessing risk of bias in randomized trials (RoB 2.0). *Trials*, 18(s1).
- Strosahl, K., Hayes, S., Wilson, K., & Gifford, E. (2004). An ACT Primer: Core therapy processes, intervention strategies and therapist competencies. In S. Hayes, & K. Strosahl (Eds.), *A Practical Guide to Acceptance and Commitment Therapy*. New York: Springer.
- Swain, J., Hancock, K., Hainsworth, C., & Bowman, J. (2013). Acceptance and commitment therapy in the treatment of anxiety: a systematic review. *Clinical psychology review*, 33(8), 965. doi:10.1016/j.cpr.2013.07.002
- Twohig, M. P., Hayes, S. C., Plumb, J. C., Pruitt, L. D., Collins, A. B., Hazlett-Stevens, H., & Woidneck, M. R. (2010). A Randomized Clinical Trial of Acceptance and Commitment Therapy Versus Progressive Relaxation Training for Obsessive-Compulsive Disorder. *Journal of Consulting and Clinical Psychology*, 78(5), 705-716. doi:10.1037/a0020508
- Tyndall, I., Waldeck, D., Pancani, L., Whelan, R., Roche, B., & Dawson, D. L. (2018). The Acceptance and Action Questionnaire-II (AAQ-II) as a measure of experiential avoidance: Concerns over discriminant validity. *Journal of Contextual Behavioral Science*. doi:10.1016/j.jcbs.2018.09.005
- Wolgast, M. (2014). What Does the Acceptance and Action Questionnaire (AAQ- II) Really Measure? *Behavior Therapy*, 45(6), 831-839. doi:10.1016/j.beth.2014.07.002
- Zargar, F., Farid, A. A. A., Atef-Vahid, M.-K., Afshar, H., & Omid, A. (2013). Comparing the effectiveness of acceptance-based behavior therapy and applied relaxation on acceptance of internal experiences, engagement in valued actions and quality of life in generalized

anxiety disorder. *Journal of Research in Medical Sciences : The Official Journal of Isfahan University of Medical Sciences*, 18(2), 118-122.

Chapter 2. Empirical Project

Wellbeing in retirement: The role of psychological flexibility, value-directed living and cognitive defusion

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Abstract

Objective: This study aimed to assess the relative contribution of value-directed living, psychological flexibility and cognitive defusion to wellbeing, adjustment and distress in retirement, beyond the variance from known predictors including physical health, financial status and social integration.

Method: This was a cross-sectional questionnaire study of a community sample of 181 retirees aged 50 and over. The measures included the Warwick-Edinburgh Mental Well-being Scale (WEMWBS), the Adjustment and Satisfaction with Retirement questionnaire, the Hospital Anxiety and Depression Scale (HADS), the Valued Living Questionnaire (VLQ), the Valuing Questionnaire (VQ), the Acceptance and Action Questionnaire – second version (AAQ-II), and the Cognitive Fusion Questionnaire (CFQ). Relationships between the variables were analysed using correlation and regression analyses.

Results: A series of multiple hierarchical regression analyses indicated that the psychological variables explained an additional 35% of variance in wellbeing, 14% of variance in adjustment and satisfaction, and 54% of variance in distress, when physical health, financial status and social integration had already been accounted for. Psychological inflexibility, as measured by the AAQ-II, was found to be the strongest psychological predictor of wellbeing, adjustment and satisfaction, and distress. It also explained more variance in these outcome variables than any of the established predictors.

Conclusions: This study provided evidence that psychological factors could be more important than physical health, financial status and social integration for people in retirement, although these findings warrant further investigation. Psychological treatments such as Acceptance and Commitment Therapy (ACT) which target these psychological processes should be evaluated further in this population.

Keywords

Acceptance and Commitment Therapy; Wellbeing; Adjustment; Distress; Retirement; Contextual science

Introduction

Retirement is an important life event marking the transition from one life stage to another, characterised by a change in role across almost every aspect of life. It is especially relevant to consider retirement experiences at the current time given that in the UK and most other developed countries, our ageing population has resulted in far more people being in retirement, and individuals spending far longer in retirement, than ever before. With this being an ongoing trend, retirement has become a key area of interest to researchers.

Retirement and psychosocial outcomes

Research shows that although many see retirement as a positive life event, retirees may be at increased risk of poor psychosocial outcomes. This is often seen as resulting from significant changes including loss of stable income, detachment from work colleagues and an increase in unstructured time (Leung & Earl, 2012). Bosse et al. (1991) reported that up to a third of people experience the transition to retirement as stressful, or experience a decline in wellbeing after retirement. The evidence is fairly inconclusive, however, with some authors reporting gender differences (Kim & Moem, 2002) and others reporting variation due to social economic status (Mein et al., 2003). Overall, national data suggests that wellbeing actually increases in those aged 65 to 74, compared to working age adults, but then declines from the age of 75, as measured by the Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS; Scottish Government, 2013).

What promotes good wellbeing in retirement?

A number of factors have been found to influence the degree of adjustment to retirement such as gender, finances, health, marital status, educational level, and quality of social networks (Barnes et al., 2002; Kim & Moen, 2001, 2002). Three types of retirement experience marking different styles of how individuals react to the transition were identified in qualitative research by Kloep and Hendry (2006). These included 'high distress', 'work as a lifestyle' and 'life beyond work'. The 'high distress' group was by far the smallest group of individuals. Their problems did not result directly from retiring, but it was reported that an accumulation of negative life experiences impacted on their ability to transition well through different life stages generally. The 'work as a lifestyle' group were seen as experiencing considerable adjustment problems as their sense of self and social connections had been closely linked to their professional role. The 'life beyond work'

group made up the largest group. Individuals in this group often chose to retire early and generally adapted well to retirement; they were already involved in numerous activities and hobbies, and they continued to lead structured and busy lives after retiring (Kleop & Hendry, 2006).

Jenkins (2006) reported that many retirees are indeed involved in a variety of meaningful activities but for some, life circumstances can make this more difficult, such as being in financial hardship, becoming a carer, experiencing poor health or having reduced mobility. Various models of retirement have been proposed to take in to account some of these complexities. Wong and Earl (2009) developed a model whereby individual, psychosocial and organisational factors, such as demographic variables, health status, work centrality and conditions of workforce exit were seen as key predictors of retirement adjustment. Perhaps surprisingly, from their sample of almost four hundred retirees, only the individual and organisational factors were found to predict retirement adjustment (Wong & Earl, 2009). This led the authors to conclude that additional research is required in order to identify the psychosocial factors that may promote retirement adjustment.

Value-directed living

There is a growing body of research investigating the role of value-directed living for improving wellbeing, particularly in groups where it might be difficult to change one's circumstances such as those experiencing chronic pain or living with a long-term health condition. Value-directed living is also known as 'valued-living' or 'values-consistent behaviour' by different authors. Values in this sense refer to what is personally meaningful to each of us and essential for enriching our lives. They are described by Harris (2007) as "Your heart's deepest desires for the sort of person you want to be and the things you want to do in your time on this planet; in other words, what you want to stand for in life".

Difficult life circumstances, or experiencing increased distress for any reason, can create an obstacle to living a valued life. Hayes (2007) noticed that in therapy, many clients express the belief that they cannot live the life that they want until their distress had been resolved. Thus the absence of distress becomes the main criteria by which life is evaluated, and clients' goals are often focused around protecting themselves from difficult feelings. In the longer-term, however, this leads to the guidance offered by values being ignored (Luoma et al., 2007). Knowing whether value-directed living has a role in retirees' wellbeing is important to investigate as approaches

specifically targeting this area could be developed as a preventative measure, as well as for providing interventions to individuals or groups experiencing difficulty in adjusting to retirement.

The Acceptance and Commitment Therapy (ACT) model

Acceptance and Commitment Therapy (ACT) is defined as a mindfulness-based, values-directed behavioural therapy (Harris, 2007). The model proposes six core processes; contact with the present moment, acceptance, cognitive defusion, self as context, connection with values and committed action (Harris, 2006). These processes are thought to be the core mechanisms of change, leading to an increase in psychological flexibility. Becoming more psychologically flexible then enables one to live in accordance with personal values, rather than being overly limited by a focus on avoidance of pain or distress.

Researchers have reported that value-directed living is associated with improved wellbeing and adjustment in a range of populations, such as caregivers (Slowey et al., 2013), people with somatic symptoms (Hesser et al., 2012), cancer patients (Rost et al., 2012), people with chronic pain (Vowles et al., 2007), people with symptoms of anxiety and depression (Bohlmeijer et al., 2011), people experiencing psychosis (White et al., 2011), people with substance misuse difficulties (Hayes et al., 2004) and those experiencing stress (Flaxman & Bond, 2010).

Given the extensive evidence that ACT processes can reduce distress in various populations, it would be helpful to know whether value-directed living plays a role in retirees' level of wellbeing and distress. Studies have already investigated factors that are somewhat amenable to change, such as retirement planning (Elder & Rudolph, 1999; Noone et al., 2009), the context in which the retiree left the workforce (Quine et al., 2007), mastery (Kim & Moen, 2001) and internal ageism (Quinn et al. 2009). Mastery was defined by Kim and Moen (2001) as having a sense of personal control. It was reported that higher levels of mastery predicted lower symptoms of depression and higher morale. Encouragingly in this longitudinal study, mastery was found to naturally increase over the early course of retirement. The findings should be interpreted with caution however as the study was limited to a sample of relatively wealthy and young retirees in New York. Quinn et al. (2009) explored attitudes to ageing in both clinical and non-clinical samples. It was found that negative attitudes to ageing predicted lower subjective wellbeing. This study also benefited from utilising a mixed-methods approach to evaluating this relationship. There is little information

however about other malleable psychological factors, such as those related to ACT, to build a comprehensive evidence base for retirement adjustment and wellbeing.

There is a small but growing body of evidence that supports the use of ACT treatments for older adults (Ross et al., 2018; Roberts & Sedley, 2015). Indeed some studies have found that older adults may actually make better use of ACT treatment than younger adults (Wetherell et al., 2015). However, no studies to our knowledge have specifically addressed the role of values or other ACT constructs in relation to the process of retirement or the experiences of retirees. If ACT processes such as value-directed living were found to predict wellbeing and adjustment in retirees, this information could be used to inform future interventions to support workers in preparation for retirement, and to assist with managing the transition should difficulties be encountered. Given that retirement is an important life stage, and relatively high numbers of people may experience some degree of difficulty in adjusting to their new retired status, it is important that psychological factors potentially playing a role in adjustment and wellbeing are investigated and identified.

Aims

The current study aims to discover whether value-directed living is associated with wellbeing, distress and adjustment to retirement, relative to established predictors such as physical health, financial status, and social connectedness. It will also investigate whether psychological flexibility or cognitive defusion are associated with wellbeing in retirement, and the relative predictive strength of these variables in comparison to valued-living. It further aims to discover whether the Valued Living Questionnaire and the Valuing Questionnaire are comparable in terms of predictive power. They are both relatively new measures, each taking a different approach to measuring value-directed living, thus it will be important for the design of future research to know more about how best to reliably measure this construct.

Methods

Design

This study used a cross-sectional questionnaire design. Participants provided demographic data and completed measures of valued living, psychological flexibility, cognitive fusion, wellbeing,

adjustment and distress. NHS ethical approval was granted from the Cambridge South Research Ethics Committee (reference: 18/EE/0292). Permission was also obtained from the Fife Health and Social Care Partnership Research and Development Committee and The University of Edinburgh, School of Health in Social Science. The approval documentation is shown in Appendix C, D and E.

Statistical power and sample size

Power calculations were carried out a priori using the G*Power programme (Faul et al., 2009). Although there were insufficient studies available to determine effect sizes for each of the analyses, Geerling and Diener (2018) reviewed effect size strengths for subjective wellbeing. They reported that personal characteristics were found to exert a varying degree of influence over wellbeing, ranging from small to large effect sizes. To be conservative, this study assumed medium effect sizes for all relationships. In the current study, sample size was calculated for a multiple regression with error set at 0.05 and effect size set at 0.15 (medium). With 7 predictor variables, the sample size required was 153.

Participants

Participants were eligible to take part in the study if they had retired from part-time or full-time paid employment or, if continuing some form of employment, then not working more than six hours per week. Participants also had to be aged fifty or over, be fluent in English, and deemed to have capacity to consent to taking part.

Measures

Participants completed a demographic questionnaire to collate information on gender, age group, marital status, pre-retirement employment type and status, reason for retiring, years since retirement, as well as self-ratings of financial status, physical health and social integration (see Appendix H). The items regarding health and finances were from the Retirement Resources Inventory (Leung & Earl, 2012). Four items from the Community Integration Questionnaire (Wilier et al., 1994) were used to provide an overall rating of social integration. The following standardised questionnaires were included to measure the key variables:

Outcome variables:

1. Wellbeing

The Warwick-Edinburgh Mental Well-being Scale (WEMWBS; Tennant et al., 2007)

The WEMWBS is a fourteen-item scale with five response categories. It is designed to measure positive psychological functioning including happiness, relaxation, confidence, agency, autonomy, energy, optimism and positive relationships. Higher scores indicate higher levels of mental wellbeing. The WEMWBS is validated in both clinical and non-clinical populations. The scale has good content validity and moderately high correlations with other mental health states (Tennant et al., 2007). The WEMWBS also has been reported to have good levels of internal consistency, with an alpha of .91 (Tennant et al., 2007).

2. Adjustment

Adjustment and Satisfaction with Retirement Questionnaire (van Solinge & Henkens, 2008)

This is a seven-item scale measuring both adjusting to retirement and contentment with retired life. High scores indicate lower adjustment problems and higher satisfaction with retirement. The authors report acceptable levels of internal consistency for the two scales, with an alpha of .80 for adjustment and .65, for satisfaction (van Solinge & Henkens, 2008).

3. Distress

Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983)

The HADS is a fourteen-item scale measuring both anxiety (HADS-A) and depression (HADS-D). Higher scores indicate higher levels of distress. It has been found to have good internal consistency (Cronbach's alpha coefficient of .83 for HADS-A and .82 for HADS-D) and good to very good concurrent validity (Bjelland et al., 2002). The HADS is reported to be suitable for detecting anxiety and depression in older adults (Dennis et al., 2007).

Predictor variables:

1. Value-directed living

Valued Living Questionnaire (VLQ; Wilson, et al., 2010)

The VLQ is a two-part scale designed to assess valued living. In the first part, participants rate the importance of ten life domains, such as family, friendships and work. The second part then asks participants to rate how consistent their behaviour has been with their values in each of the domains. A composite score is calculated to determine the level of values-consistent behaviour, with important values being weighted more heavily. The authors recommend calculating a VLQ

composite score by multiplying the importance rating by the consistency rating for each domain, and then summing these amounts. The internal consistency of the valued living composite score was reported in one study as adequate (Cronbach's alpha coefficient of .65) and in another as good (.77), and the test–retest reliability coefficients ranged from .61 to .82 and .43 to .61 for importance and consistency respectively (Wilson et al., 2010).

2. Value-directed living

Valuing Questionnaire (VQ; Smout et al., 2013)

The VQ is a ten-item scale designed as a brief measure of valued living. Higher scores indicate higher levels of progress towards values and lower levels of values obstruction. It has been found to have good reliability and validity in clinical samples (Smout et al., 2013). The authors also report that the scale is able to explain additional variance in quality of life measures that similar questionnaires do not. Consequently, it is thought that the scale may capture variation in valued living in groups of people without mental health difficulties. It therefore may be particularly relevant in research around preventative interventions or those otherwise aimed at non-clinical populations.

3. Psychological Flexibility

Acceptance and Action Questionnaire – second version (AAQ-II; Bond et al., 2011)

The AAQ-II is a ten-item measure designed to provide a score for psychological inflexibility. Although the 10-item AAQ-II has since been replaced with the 7-item AAQ-II, the newer version consists of only negatively orientated items. The original AAQ-II contains the same seven items, but also includes three positively orientated items. For instance, participants are asked to rate the item “It is OK if I remember something unpleasant” on a scale of one (“never true”) to seven (“always true”). Higher scores represent a higher level of psychological inflexibility. The original AAQ-II used in this study is reported to have a Cronbach's alpha of .87 (Bond et al, 2011).

4. Cognitive Defusion

Cognitive Fusion Questionnaire (CFQ; Gillanders et al., 2014)

The CFQ is a seven-item questionnaire designed to measure fusion with cognitions. According to the ACT model, being able to step back and observe thoughts from a distance is known as 'cognitive defusion'. The opposite process is 'cognitive fusion', whereby behaviour is overly influenced by thoughts. The authors report that there is likely to be overlap with psychological inflexibility, given that the latter is thought to be a form of cognitive fusion. Higher CFQ scores indicate a greater degree of cognitive fusion. The measure is reported to have excellent internal consistency in community samples (Cronbach's alpha of .90) and good test-retest reliability of .80 (Gillanders et al., 2014).

Recruitment

Individuals were recruited through various sources. Posters and flyers were displayed in locations accessed by the general public such as health care settings and supermarkets. The materials provided contact details for the main researcher so that interested members of the public could request a pack by telephone or email. The main researcher also contacted groups and organisations in Fife where members are either retired or typically over fifty. Some groups agreed to publicise the study in newsletters and at meetings. In these settings, group members and service users could either contact the main researcher to request a pack, or where packs had already been made available to organisations, they could be accessed by participants without making contact with the research team. Clinicians in the NHS Fife psychology service advertised the study among client groups and other networks. All questionnaire packs that had been requested by individuals were sent out by post. The packs contained the participant information sheet (see Appendix F), a self-care message, consent form, full set of measures and a pre-paid envelope for returns.

In total, 492 questionnaire packs were distributed of which 237 postal returns were received back, equating to a 48% return rate. Fifty-six returned questionnaire packs were excluded for the following reasons: continuing to be in paid employment for more than six hours per week ($n=1$), written consent not provided ($n=18$), substantial missing data, defined as over 10% for at least one variable ($n=22$), apparent use of a response set ($n=4$), and returns that missed the response cut-off period ($n=11$). The analyses were based on the remaining 181 participants.

Analytic Plan

Missing data for the remaining 181 participants was investigated by SPSS. Less than 5% of data was missing for any one case. For all individual items, except for the VLQ items which were dealt with separately, there was a very low rate of missing data (0.1%). The Little's missing completely at random (MCAR) test indicated that data was missing completely at random for each variable. Mean substitution was therefore used to replace the missing data.

There was a larger proportion of missing VLQ data from the 181 participants (1.1%). The missing data notably came from items regarding 'parenting' (2.2%) and 'work' (4.7%). Some participants wrote comments such as 'n/a' or indicated that the items did not seem relevant for them, for instance due to not being a parent, or in relation to having retired from work. Missing data for the VLQ was not replaced as the instructions for calculating the VLQ composite score requires all items to be completed (Wilson et al., 2010). Total VLQ scores were available for 158 participants. Thus the 23 participants without a VLQ composite score were excluded pairwise from VLQ analyses, but their data was included in all other analyses.

All variables were checked for assumption of normality. A Kolmogorov-Smirnov test confirmed that the VLQ scores were normally distributed, $d(158) = 0.03$, $p = .20$, but the other variables were found to have significant levels of skew and kurtosis. Field (2009) advises caution when interpreting Kolmogorov-Smirnov significance levels for large samples because the values are often found to be significant even when the scores are only marginally different from a normal distribution. Histograms and q-q plots were therefore visually inspected to confirm normal distribution, and the values for skew and kurtosis were all within acceptable ranges.

The statistical analyses were all conducted using IBM SPSS Statistics 24. Descriptive statistics and correlations were undertaken. Hierarchical multiple regression analyses were then used to compare the strength of associations between the predictor variables and the three dependent variables: wellbeing, adjustment and distress. The established predictor variables (physical health, financial status and social integration) were entered in block 1. The psychological predictor variables (VLQ, VQ, AAQ and CFQ) were entered in block 2.

Hypothesis

It was hypothesised that:

- (1) Higher value-directed living will be significantly associated with increased wellbeing, lower distress and better adjustment to retirement.
- (2) Higher psychological inflexibility and cognitive fusion will be significantly associated with lower wellbeing, higher distress and poorer adjustment to retirement.
- (3) The key predictor variables (valued behaviour, psychological flexibility and cognitive fusion) will explain significant proportions of the variance in the outcome variables (wellbeing, adjustment and distress), even after other established predictor variables are accounted for (physical health, financial situation and social integration).

Results

Sample characteristics

Descriptive statistics are summarised in Table 1 and 2. Of the 181 participants, 54% were female and 46% were male. Adults aged 65 to 74 years accounted for the majority of the sample (62%). A high proportion of the sample were married (79%). Most participants reported holding professional or managerial roles prior to retirement (76.8%).

Table 1. Sample characteristics

Characteristic	N (%)
Gender	
Female	98 (54.1%)
Male	83 (45.9%)
Age group	
50-54	3 (1.7%)
55-59	3 (1.7%)
60-64	32 (17.7%)
65-69	51 (28.2%)
70-74	61 (33.7%)
75-79	19 (10.5%)
80+	12 (6.6%)

Marital status	
Married	142 (78.5%)
Partnered	7 (3.9%)
Divorced / separated	16 (8.8%)
Single	4 (2.2%)
Widowed	12 (6.6%)
Main pre-retirement employment	
Manager	47 (26.0%)
Professional	92 (50.8%)
Technician / associate professional	16 (8.8%)
Clerical support worker	14 (7.7%)
Service and sales worker	7 (3.9%)
Skilled agricultural, forestry or fishery worker	2 (1.1%)
Craft or related trades worker	3 (1.7%)
Years since retirement	
0-4	43 (23.8%)
5-9	61 (33.7%)
10-14	40 (22.1%)
15-19	22 (12.2%)
20+	15 (8.3%)

Wellbeing, adjustment and satisfaction, and distress

Participant scores for wellbeing (M=54.1) were slightly above those from a large Scottish sample (Scottish Government, 2013). National scores were highest for those aged 55-64 (M=50.3) and 65-74 (M=50.9) but lowest for those aged 75+ (M=48.6) as measured by the WEMWBS (Scottish Government, 2013). The majority of the current participants were within the age groups where wellbeing tends to be higher, indicating that scores were roughly similar with national data.

The overall mean score for retirement adjustment and satisfaction was 23.7. This is similar to a Scottish community sample mean score of 23.5 (n=112) reported by Ramirez-Ruiz et al. (2016). Scores of adjustment and satisfaction in the original Dutch study (n=778) were separated into two

factors (van Solingue & Henkens, 2008) but scores by item were similar. For instance, 50% of the Dutch sample stated that it was 'not difficult at all' to adjust to retirement (van Solingue & Henkens, 2008). In the current sample, this figure was 51%, suggesting that the groups are likely to be comparable.

The mean score for the HADS was 8.3. This is slightly lower than a mean score of 9.8 (SD 5.98) reported from a large non-clinical UK sample (n=1,792) in Crawford et al. (2001). Nonetheless, the HADS authors recommend interpreting scores of 8-10 to indicate mild levels of anxiety and depression (Snaith & Zigmond, 1994). The mean for both samples fall within this range, suggesting that the samples were comparable for levels of distress.

Table 2. Independent and outcome variable scores

	Possible range	Lowest score	Highest score	Mean (SD)
Independent variables				
Physical health	1-5	2	5	3.9 (0.8)
Financial status	1-5	2	5	3.4 (0.7)
Social integration	0-8	1	8	6.2 (1.7)
VLQ (n=158)	10-100	13	94	60.3 (15.5)
VQ	10-60	20	60	45.1 (7.2)
AAQ-II	10-70	10	59	23.6 (9.3)
CFQ	7-49	7	48	18.4 (8.7)
Dependent variables				
WEMWBS	14-70	24	70	54.1 (7.9)
Adjustment and Satisfaction	7-29	9	29	23.7 (4.5)
HADS	0-42	0	32	8.3 (5.6)

Higher scores indicate the healthier or better resourced end of the scale, apart from in the CFQ, HADS and AAQ-II, where higher scores represent increased cognitive fusion, psychological inflexibility and distress. VLQ= valued-living questionnaire, VQ= valuing questionnaire, AAQ-II= acceptance and action questionnaire-II, CFQ= cognitive fusion questionnaire, WEMWBS= Warwick-Edinburgh mental well-being scale, HADS= hospital anxiety and depression scale

Valued behaviour, psychological flexibility and cognitive fusion

In this study the mean score for the VLQ was 60.3. This is roughly similar to a sample (n=57) of an American student population, where the mean score was 64.2 (Wilson et al., 2010). To our knowledge, there is no normative data available for the VLQ in a non-clinical older adult population.

The mean score for the VQ was 45.1. Most studies report results for the subscales only. In this study, the mean 'progress' subscale score was 21.6 (SD= 4.2) and the mean 'obstruction' subscale score was 11.5 (SD= 4.6). For comparison, in a sample of 623 undergraduate psychology students, the values-progress score was 17.2 and the values-obstruction score was 12.0 (Christie et al., 2017). It should be noted that in the current study, due to an administration error, the Likert scale for the VQ provided response options of 1-6, whereas the original scale has response options of 0-6. The scores in this study are therefore over-inflated and should not be used for comparative purposes without taking this into account.

The mean for psychological inflexibility on the 10-item AAQ-II was 23.6. To allow for comparison, using the corresponding items for the 7-item AAQ-II, the mean score would be 14.8 (SD=7.2). This is lower but comparable to a non-clinical sample (m=18.5, SD=7.1) reported by Bond et al. (2011)

The mean for cognitive fusion was 18.4. This is similar to a Scottish older adult community (n=233) sample mean of 17.1 (SD=8.7) in Keir et al. (2014).

Physical health, financial status and social integration

The mean score for physical health was 3.9 (possible range 1-5) which is in the 'average' category. The mean score for financial status was 3.4 (possible range 1-5), which also fell in to the middle category, indicating that the average participant rated themselves as possessing a 'moderate' amount of money to support their living expenses. The mean for social integration was 6.2 (possible range 0-8). Seventy-eight per cent of the sample reported having a close friend with whom they confide, and 56% reported engaging in leisure activities at least 5 times a month.

Correlation analysis

Pearson's correlations were conducted to explore the relationships between the predictor and outcome variables (see Table 3). The results showed correlations at the significant level between

all predictor and outcome variables in the expected direction, except for financial status which had no significant relationship with any other variable.

In line with hypothesis 1, both measures of value-directed living were associated with higher levels of wellbeing. The VQ had the strongest relationship with wellbeing ($r=.63$, $p<.001$) but the VLQ was similar ($r=.56$, $p<.001$). These were both strong correlations (Cohen, 1988, p. 70-81). Both valued living measures were also associated with lower distress. A large relationship was found between the VQ and distress ($r=-.61$, $p<.001$), and a medium relationship was found for the VLQ and distress ($r=-.39$, $p<.001$). Both values measures were found to have medium strength relationships with adjustment and satisfaction, ($r=.40$, $p<.001$) for the VQ and ($r=.31$, $p<.001$) for the VLQ.

In line with hypothesis 2, psychological inflexibility had a medium strength relationship with adjustment and satisfaction ($r=-.48$, $p<.001$), and strong relationships with both wellbeing ($r=-.67$, $p<.01$) and distress ($r=.83$, $p<.001$). Similarly, cognitive fusion had a medium strength relationship with adjustment and satisfaction ($r=-.41$, $p<.001$), and strong correlations with wellbeing ($r=-.60$, $p<.001$) and distress ($r=.80$, $p<.001$).

Hypothesis 3 was based on the assumption that social integration, physical health and financial status would be significantly associated with the outcome variables. In this sample it was found that physical health had medium strength relationships with wellbeing ($r=.46$, $p<.001$), adjustment and satisfaction ($r=.36$, $p<.001$) and distress ($r=-.45$, $p<.001$). Social integration had a medium size relationship with wellbeing ($r=.38$, $p<.001$) and small relationships with adjustment and satisfaction ($r=.20$, $p=.006$) and distress ($r=-.23$, $p=.002$). Contrary to expectation, no relationship was found between financial status and any of the outcome variables.

Exploring the correlations between all variables allowed for potential issues around multicollinearity to be investigated. The correlation results confirmed the appropriateness of carrying out the regression analyses as planned a priori.

In addition to the hypothesis-driven data analysis, a Spearman's Rho correlation was used to check whether variables such as marital status and years since retirement were related to the outcome variables, but no significant relationships were found.

Table 3. Correlation matrix between independent and outcome variables

	Wellbeing	Adjustment and Satisfaction	Distress	Financial Status	Physical Health	Social Integration	VLQ	VQ	CFQ	AAQ-II
Wellbeing	1	.46**	-.71**	.06	.46**	.38**	.56**	.63**	-.60**	-.67**
Adjustment and Satisfaction		1	-.52**	.05	.36**	.20**	.31**	.40**	-.41**	-.48**
Distress			1	-.06	-.45**	-.23**	-.39**	-.61**	.80**	.83**
Financial status				1	.13	.07	.08	.01	-.01	-.05
Physical health					1	.18*	.24**	.31**	-.32**	-.36**
Social integration						1	.37**	.18*	-.09	-.18*
VLQ							1	.52**	-.26**	-.36**
VQ								1	-.57**	-.60**
CFQ									1	.85**
AAQ-II										1

** = Correlation is significant at the 0.01 level (2-tailed)

* = Correlation is significant at the 0.05 level (2-tailed)

Regression analysis

Assumptions for each of the regressions were checked and found to be met. Visual inspection of histograms confirmed normality. Scatterplots were concentrated around zero, and the Durbin-Watson statistic was close to 2 for all regressions, indicating linearity and independence of residuals. Visual inspection of P-P plots also confirmed that assumptions of homoscedasticity were not violated. Multicollinearity was assessed by checking the tolerance and Variance Inflation Factor (VIF). This suggested that assumptions were met as tolerance was above .1 and VIF was below 10 for all analyses (Field, 2009).

Given that the relationships between financial status and the outcome variables did not reach significance in the correlation analysis, the regression analyses were run with and without financial status as a predictor variable entered in block 1. It was found that including financial status made no difference to the regression outcome, so it was decided to retain financial status in all analyses, as had been initially planned.

Additionally, it had been anticipated that there would be a high degree of overlap between the two values measures. If that had been the case then running separate regression analyses allowing for one valued-living measure to be investigated at a time, rather than entering them both together, may have been most appropriate. However, the VLQ and VQ were not found to be as related to each another as might have been expected ($r=.52$). Consequently, the VLQ and VQ were entered into the analyses together in block 2.

To test hypothesis 3, a hierarchical multiple regression was used to assess the ability of valued living, cognitive fusion and psychological flexibility to predict levels of wellbeing after controlling for the influence of financial status, physical health and social integration (see Table 4). The established predictor variables entered at step 1 explained 30.9% of the variance in wellbeing. After entering the VLQ, VQ, AAQ and CFQ at step 2, the total variance explained by the model as a whole was 65.5%, $F(7, 150) = 40.69, p < .001$. The psychological factors of interest explained an additional 35% of variance in wellbeing after controlling for the established predictors, $R^2 \text{ change} = .35, F \text{ change}(4, 150) = 37.66, p < .001$. In the final model the variables found to be statistically significant in predicting wellbeing, in order of importance, were; psychological flexibility ($\beta = -.29, p = .003$), VLQ ($\beta = .22, p < .001$), VQ ($\beta = .19, p = .006$), physical health ($\beta = .18, p = .001$) and social integration ($\beta = .17, p = .001$). Cognitive fusion was not found to

be statistically significant (beta= -.12, p= .215), however this might be due to the very strong association between the AAQ-II and CFQ (r=.85).

Table 4. Multiple hierarchical regression for prediction of wellbeing

	Beta β	p value	R ²	R ² changed	p value
Step 1			.31	.31	<.001
Physical health	.41	<.001			
Financial status	-.02	.805			
Social integration	.31	<.001			
Step 2			.66	.35	<.001
VLQ	.22	<.001			
VQ	.19	.006			
AAQ-II	-.29	.003			
CFQ	-.12	.215			

VLQ= valued-living questionnaire, VQ= valuing questionnaire, AAQ-II= acceptance and action questionnaire-II, CFQ= cognitive fusion questionnaire

For the second regression the same steps were followed, but with adjustment and satisfaction as the outcome variable of interest (see Table 5). The established predictor variables entered at step 1 explained 15.2% of the variance in adjustment and satisfaction. After entering the VLQ, VQ, AAQ and CFQ at step 2, the total variance explained by the model as a whole was 29.6%, $F(7, 150) = 9.00$, $p < .001$). The psychological factors explained an additional 14.4% of variance in adjustment and satisfaction after controlling for the established predictors, R^2 change = .14, F change (4, 15) = 7.68, $p < .001$. In the final model, only two variables were statistically significant, with psychological inflexibility recording a higher beta value (beta= -.30, $p = .03$) than physical health (beta= .19, $p = .01$).

Table 5. Multiple hierarchical regression for prediction of adjustment and satisfaction

	Beta β	p value	R ²	R ² changed	p value
Step 1			.15	.15	<.001
Physical health	.34	<.001			
Financial status	-.00	.952			
Social integration	.15	.057			
Step 2			.30	.14	<.001
VLQ	.07	.391			
VQ	.10	.322			
AAQ-II	-.30	.029			
CFQ	-.02	.908			

VLQ= valued-living questionnaire, VQ= valuing questionnaire, AAQ-II= acceptance and action questionnaire-II, CFQ= cognitive fusion questionnaire

Table 6. Multiple hierarchical regression for prediction of distress

	Beta β	p value	R ²	R ² changed	p value
Step 1			.22	.22	<.001
Physical health	-.42	<.001			
Financial status	.01	.927			
Social integration	-.16	.034			
Step 2			.76	.54	<.001
VLQ	-.05	.310			
VQ	-.08	.135			
AAQ-II	.43	<.001			
CFQ	.32	<.001			

VLQ= valued-living questionnaire, VQ= valuing questionnaire, AAQ-II= acceptance and action questionnaire-II, CFQ= cognitive fusion questionnaire

For the third regression the same steps were followed again, but with distress as the outcome variable of interest (see Table 6). The established predictor variables entered at step 1 explained 22.2% of the variance in distress. After entering the VLQ, VQ, AAQ and CFQ at step 2, the total variance explained by the model as a whole was 76.2%, $F(7, 150) = 68.72$, $p < .001$. The psychological factors explained an additional 54.0% of variance in distress after controlling for the established predictors, $R^2 \text{ change} = .54$, $F \text{ change}(4, 150)$, $p < .001$. In the final model, three variables were statistically significant, with psychological inflexibility recording the highest beta value ($\beta = .43$, $p < .001$), followed by cognitive fusion ($\beta = .32$, $p < .001$) and lastly, physical health ($\beta = -.14$, $p < .001$).

Given that the HADS was found to have a very strong relationship with the CFQ and AAQ-II in the correlation analysis, the regression with distress as the outcome variable was repeated without the CFQ and AAQ-II as predictor variables. This time, the model as a whole explained 45% of the variance in distress, of which 23% was accounted for by the VLQ and VQ added at Step 2, $R^2 \text{ change} = .23$, $F \text{ change}(2, 152)$, $p < .001$.

Discussion

The purpose of this study was to investigate the role of value-directed living, psychological flexibility and cognitive defusion in retirement. The results add to existing models of retirement outcomes by showing the importance of these psychological factors in explaining unique variance in wellbeing, adjustment and distress, over and above the impact of established predictors such as health and social integration.

The correlation analysis demonstrated that the predictor and outcome variables were all related to one another. It was somewhat surprising how much stronger the relationships were between the psychological variables and wellbeing, compared to the relationships between the control variables and wellbeing.

Of all the predictor variables, psychological flexibility was found to have the strongest relationship with wellbeing. Psychological flexibility was also found to have the strongest relationship with adjustment and satisfaction, compared to the other predictor variables. The pattern was the same for distress, but interestingly, psychological inflexibility was found to correlate so strongly with

distress that it raises the question of whether the two questionnaires were inadvertently measuring the same construct. To check whether this strong relationship might have resulted from a small number of outliers, the prevalence of distress in the sample was reviewed. While the average score for distress in this sample was slightly below the national average, there was still a sizeable proportion of participants (21%) who scored in the 'moderate' or 'severe' range for distress. This suggests that the high overlap with psychological inflexibility is not simply explained by an unusual distribution of scores. Nonetheless, the correlation found in this study is higher than that reported by Thomson et al. (2015) from a similar sized Scottish sample of older adults ($r = .68$) where distress was measured by the DASS 21 (Lovibond & Lovibond, 1995).

The correlation analysis revealed that there was no relationship between financial status and wellbeing, adjustment or distress. This runs contrary to what is reported by most other studies. It may be that our method of measuring financial situation was unsuitable. There were 5 response options provided on the item regarding finances. None of the participants selected the lowest option, meaning that all responses varied between only 4 points. It may be that providing a larger number of response options would have led to a greater spread of scores. Had there been a relationship between financial status and the other variables, this might have increased the likelihood of detecting it.

Another interesting finding from the correlation analysis was that the VLQ and VQ, both measures of value-directed living, were not as related to each other as might be expected. This raises the question of whether they are measuring slightly different constructs, or whether one is measuring valued-living more effectively than the other. In the regression analysis, both were found to explain unique variance in wellbeing, with the VLQ performing slightly better. Despite this, the VQ had a stronger relationship with wellbeing in the correlation analysis.

In the regression analysis, cognitive fusion did not significantly add to the prediction of wellbeing beyond the variance explained by the other predictor variables. This outcome was to be expected, given that the AAQ-II was found to be predictive of wellbeing, and the correlation analysis showed a very strong association between the AAQ-II and CFQ. It is possible that they are measuring the same construct and could be used interchangeably, or it may be the case that they are separate but strongly-related constructs.

Overall, the regression analyses showed that the ACT constructs predicted a substantial amount of variance in wellbeing, adjustment and distress for retirees. This finding is in line with our hypothesis and is consistent with what would be expected from previous research (e.g. Thomson et al., 2015).

Exploratory correlation analysis did not find any relationships between marital status or years in retirement with wellbeing, adjustment or distress. This might seem somewhat surprising, however other researchers have concluded that while there is some initial evidence for marriage having a protective effect on wellbeing in later life, this only appears to be the case for those reporting a high level of satisfaction in their relationships (Hank & Wagner, 2013).

Theoretical implications

The current study tested hypotheses regarding the role of ACT constructs in predicting wellbeing, adjustment and distress in retirement. Our results provide support for there being weak to strong relationships between these variables.

The theoretical underpinning of ACT is that it does not seek to reduce distress, but instead aims to increase psychological flexibility so that individuals can focus on leading a valued and meaningful life despite the impact of pain or distress that they might be experiencing. From an ACT perspective, it could then be assumed that the ACT constructs would be most closely linked to adjustment and satisfaction, and least related to distress. Interestingly, the model for adjustment and satisfaction actually had the least amount of variance explained by the ACT constructs, whereas the model for distress had the most amount of variance explained by the ACT constructs.

Psychological flexibility was found to be the strongest predictor for all models, with valued-living also playing an important but less clear role. It would be beneficial for further research to explore these relationships in more detail. In a study by Thomson et al. (2015) it was found that although psychological flexibility predicted valued living and low mood, engagement in valued living did not directly impact on psychopathology. This indicates the likely existence of mediating relationships to investigate in future studies.

The significant overlap between some of the constructs raises the question of whether there is a single overarching concept in ACT or whether pragmatic differences exist between the different constructs. Given that psychological flexibility consistently had the strongest predictive power, and

given that its strength relative to cognitive fusion and valued living remained fairly stable in different analyses, the results appear to support the theoretical underpinning that psychological flexibility is the core process in ACT, with other inter-related constructs also being identifiable. Further evaluation of the overall ACT model is, however, beyond the scope of the current study.

Clinical implications

This study has implications for clinical practice as well as for preventative measures targeting the general workforce of people approaching retirement. It suggests that ACT treatments, or ACT-informed approaches, may be of use for people in retirement to improve wellbeing, adjustment and distress. Moreover, this finding applies regardless of whether the individual recently took early retirement in their fifties, or whether they retired many years ago and are now in their eighties.

The results suggest that interventions might benefit from focusing on increasing psychological flexibility as this construct appears to be a likely protective factor in retirees. Awareness of these processes and targeted interventions could be delivered on a tiered basis. For instance, many organisations offer training days, workshops or resources to support employees in preparing for retirement. It could be that information such as sign-posting to relevant self-help materials are made available to support those who wish to explore strategies for building their own psychological resilience. For those who experience clinical difficulties in retirement, it may be that training more clinicians in specialist skills for delivering ACT treatments would be beneficial. It could also be the case that screening for low levels of psychological flexibility would be helpful in highlighting instances where an ACT based approach is indicated for therapy.

Limitations

This study employed a cross-sectional design and as such all data was collected at a single time point. This means that causality cannot be inferred. Future research could use a longitudinal design beginning pre-retirement and following-up participants in the months after they have finished working. Alternatively, an ACT intervention could be offered to those in retirement to explore a causal link between increased psychological flexibility and wellbeing. Furthermore, research exploring qualitative data would contribute to a more nuanced understanding of issues around wellbeing in retirement.

The recruitment strategy was deliberately as wide-ranging as possible. Exclusion criteria were kept to a minimum and the study was widely advertised to the general public. An issue that can arise from this approach is that self-selecting samples typically have higher levels of motivation which among other factors can mean that the sample is biased towards individuals who are functioning well. A key strategy for recruitment was making contact with groups for retired people. Thus retired individuals actively involved in social and leisure activities were more likely to have heard about the study than retired people who were socially isolated or inactive. Although the questionnaire included an item to enquire about the route for being recruited into the study, the majority of participants did not select one of the main response categories, but instead indicated that they had heard about the study through word-of-mouth. It is therefore difficult to know if certain groups were represented more than others, although it certainly appeared that the sample had a disproportionate number of participants from a professional background. This is indicative of there being a bias towards higher socio-economic groups being represented. It might be that other recruitment methods, such as posting out surveys to a proportion of households in various residential areas, would have reduced bias.

A fairly high rate of potential participants were excluded from the study due to missing data. This could provide an additional source of bias if it were the case that factors such as poorer physical health made it more difficult for participants to sustain attention and complete all items. Part of the rationale for using a low threshold to exclude questionnaires with missing data was to reduce the risk of invalid data. Many studies screen for cognitive impairment when recruiting from a predominantly older adult population due to the higher incidence of cognitive-related difficulties in this age group. Due to the nature of the recruitment method it was not feasible to screen for cognitive impairment in this study. Consequently, it was decided that to protect the quality of the data, questionnaires with frequent missing data would be screened out. To check whether this might have overly biased the sample towards a healthy population, the demographic information from missing data was reviewed. It was found that 95% of those with missing data described their physical health as 'average', 'good' or 'extremely good', which suggests that the sample was not overly biased in terms of health. Of note, a fairly large proportion (36%) of those excluded due to missing data were aged 75 or over. In comparison, only 17% of the included sample were 75 or older. Older age might explain an increased difficulty in completing the questionnaire for a number of reasons. Quite a few participants appear to have missed whole sections when turning

the page, which might be explained by lower manual dexterity associated with ageing (Martin et al., 2015). Another explanation is that the higher incidence of cognitive issues in older age accounted for the difficulties in either attending to or comprehending each item in what was a fairly lengthy set of measures. Future research might benefit from use of an online survey with a function to highlight missed items to the participant, in order to reduce the occurrence of missing data as far as possible.

Another contributing factor to missing data was that the VLQ might not be an appropriate tool for use with retired people, should all items need to be completed for the analyses. One item in the VLQ refers to whether work is an important life value, and another refers to education and training. Some participants left these items unanswered, presumably because they seemed less applicable, resulting in exclusion from analyses. Either an adapted version could be used, or it might be that choosing an alternative measure of valued living is preferable for this group. Nonetheless, including a second measure of valued living in this study helped to protect against this implications of missing VLQ data.

Conclusions

This research demonstrates support for the role of value-directed living, psychological flexibility and cognitive defusion in improving wellbeing, adjustment and distress in retirement. The study provides promising evidence, in line with previous research, for the importance of psychological flexibility in particular. The findings suggest that further efforts to raise awareness of ACT, to identify retirees with low psychological flexibility, and to increase the provision of ACT based treatments will be important for protecting and improving the emotional health of people in retirement.

References

- Barnes, H., Parry, J., Lakey, J., & Platman, K. (2003). Forging a new future: the experiences and expectations of people leaving paid work over 50. In H. Barnes, J. Parry, J. Lakey, & K. Platman (Eds.), (Vol. 23, pp. 689-692).
- Bjelland, I., Dahl, A. A., Haug, T. T., & Neckelmann, D. (2002). The validity of the Hospital Anxiety and Depression Scale: An updated literature review. *Journal of Psychosomatic Research*, 52(2), 69-77. doi:10.1016/S0022-3999(01)00296-3
- Bohlmeijer, E. T., Fledderus, M., Rokx, T. A. J. J., & Pieterse, M. E. (2010). Efficacy of an early intervention based on acceptance and commitment therapy for adults with depressive symptomatology: Evaluation in a randomized controlled trial. *Behaviour Research and Therapy*, 49(1), 62-67. doi:10.1016/j.brat.2010.10.003
- Bond, F. W., Hayes, S. C., Baer, R. A., Carpenter, K. M., Guenole, N., Orcutt, H. K., . . . Zettle, R. D. (2011). Preliminary Psychometric Properties of the Acceptance and Action Questionnaire— II: A Revised Measure of Psychological Inflexibility and Experiential Avoidance. *Behavior Therapy*, 42(4), 676-688. doi:10.1016/j.beth.2011.03.007
- Bossé, R., Aldwin, C. M., Levenson, M. R., & Workman-Daniels, K. (1991). How stressful is retirement? Findings from the Normative Aging Study. *Journal of gerontology*, 46(1), P9. doi:10.1093/geronj/46.1.P9
- Christie, A. M., Atkins, P. W. B., & Donald, J. N. (2017). The Meaning and Doing of Mindfulness: The Role of Values in the Link Between Mindfulness and Well-Being.(Report)(Author abstract). *Mindfulness*, 8(2), 368. doi:10.1007/s12671-016-0606-9
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (Second edition.. ed.). Hillsdale, N.J. ; Hove: Hillsdale, N.J. ; Hove : Lawrence Erlbaum.
- Crawford, J. R., Henry, J. D., Crombie, C., & Taylor, E. P. (2001). Normative data for the HADS from a large non-clinical sample. *British Journal of Clinical Psychology*, 40(4), 429-434. doi:10.1348/014466501163904

- Dennis, R. E., Boddington, S. J. A., & Funnell, N. J. (2007). Self-report measures of anxiety: Are they suitable for older adults? *Aging & Mental Health*, 11(6), 668-677.
doi:10.1080/13607860701529916
- Elder, H. (1999). Does retirement planning affect the level of retirement satisfaction? *Financial Services Review*, 8(2), 117-127. doi:10.1016/S1057-0810(99)00036-0
- Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses using G * Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, 41(4), 1149-1160. doi:10.3758/BRM.41.4.1149
- Field, A. P. (2009). *Discovering statistics using SPSS : (and sex and drugs and rock 'n' roll)* (Third edition.. ed.). Los Angeles, Calif. ; London: Los Angeles, Calif. ; London : SAGE Publications.
- Flaxman, P. E., & Bond, F. W. (2010). A randomised worksite comparison of acceptance and commitment therapy and stress inoculation training. *Behaviour Research and Therapy*, 48(8), 816-820. doi:10.1016/j.brat.2010.05.004
- Geerling, D. M., & Diener, E. (2018). Effect Size Strengths in Subjective Well-Being Research. *Applied Research in Quality of Life*. doi:10.1007/s11482-018-9670-8
- Gillanders, D. T., Bolderston, H., Bond, F. W., Dempster, M., Flaxman, P. E., Campbell, L., . . . Remington, B. (2014). The Development and Initial Validation of the Cognitive Fusion Questionnaire. *Behavior Therapy*, 45(1), 83-101. doi:10.1016/j.beth.2013.09.001
- Hank, K. & Wagner, M. (2013). Parenthood, Marital Status, and Well-Being in Later Life: Evidence from SHARE. *Social Indicators Research*, 114(2). doi: 10.1007/s11205-012-0166-x
- Harris, R. (2006). Embracing Your Demons: an overview of Acceptance and Commitment Therapy. *Psychotherapy in Australia*, 12 (4). Harris, R. (2007). Advanced ACT Workshop Handout. Retrieved November 1, 2018 from: www.actmindfully.com.au;
<https://www.scribd.com/document/73542639/2007-Advanced-ACT-Workshop-Handout>

- Harris, R. (2007). Acceptance and Commitment Therapy (ACT) introductory workshop handout. Retrieved November 1, 2018, from:
<https://thehappinesstrap.com/upimages/2007%20Introductory%20ACT%20Workshop%20Handout%20-%20%20Russ%20Harris.pdf>
- Hayes, S. C., Masuda, A., & De Mey, H. (2003). Acceptance and Commitment Therapy and the third wave of behavior therapy. *Gedragstherapie (Dutch Journal of Behavior Therapy)*, 2, 69-96.
- Hayes, S. C., Wilson, K. G., Gifford, E. V., Bissett, R., Piasecki, M., Batten, S. V., . . . Gregg, J. (2004). A Preliminary trial of twelve-step facilitation and acceptance and commitment therapy with polysubstance-abusing methadone-maintained opiate addicts. *Behavior Therapy*, 35(4), 667-688. doi:10.1016/S0005-7894(04)80014-5
- Hayes, S. (2007). Hello darkness: discovering our values by confronting our fears. *Psychotherapy Networker*, 31 (5), 46 - 52.
- Hesser, H., Gustafsson, T., Lunden, C., Henrikson, O., Fattahi, K., Johnsson, E., . . . Andersson, G. (2012). A Randomized Controlled Trial of Internet-Delivered Cognitive Behavior Therapy and Acceptance and Commitment Therapy in the Treatment of Tinnitus. *Journal of Consulting and Clinical Psychology*, 80(4), 649-661. doi:10.1037/a0027021
- Jason, A. M., Jill, R., Christopher, H., Derek, M. P., & Martin, G. E. (2015). Age and grip strength predict hand dexterity in adults. *PLoS ONE*, 10(2), e0117598. doi:10.1371/journal.pone.0117598
- Jenkins, J. (2006). Senior Citizens, Third Agers, Silver Surfers – But do they wear purple? Unpublished MSc thesis, University of Surrey and Pre-Retirement Association.
- Keir, L. (2015). Depression in later life: a review of the effectiveness and efficiency of psychological therapies and an empirical exploration of the predictors of attitudes to seeking psychological help and recognition of depression. In: ProQuest Dissertations Publishing.

- Kim, J.E. & Moen, P. (2001). Moving into retirement: Preparations and transitions in late midlife. In M.E. Lachman (Ed.) *Handbook of midlife development* (pp.487–527). Wiley: New York.
- Kim, J. E., & Moen, P. (2002). Retirement transitions, gender, and psychological well-being: a life-course, ecological model.(Abstract). *The Journals of Gerontology, Series B*, 57(3), P212. doi:10.1093/geronb/57.3.P212
- Kloep, M., & Hendry, L. B. (2006). Pathways into retirement: Entry or exit? *Journal of Occupational and Organizational Psychology*, 79(4), 569-593. doi:10.1348/096317905X68204
- Lachman, M. E. (2001). *Handbook of midlife development*. New York ; Chichester: New York ; Chichester : Wiley.
- Leung, C. S. Y., & Earl, J. K. (2012). Retirement Resources Inventory: Construction, Factor Structure and Psychometric Properties. *Journal of Vocational Behavior*, 81(2), 171-182. doi:10.1016/j.jvb.2012.06.005
- Lovibond, P. F., & Lovibond, S. H. (1995). The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. *Behaviour Research and Therapy*, 33(3), 335-343. doi:10.1016/0005-7967(94)00075-U
- Luoma, J. B. (2007). *Learning ACT : an acceptance & commitment therapy skills-training manual for therapists*. Oakland, CA: Oakland, CA : New Harbinger Publications.
- Mein, G., Martikainen, P., Hemingway, H., Stansfeld, S., & Marmot, M. (2003). Is retirement good or bad for mental and physical health functioning? Whitehall II longitudinal study of civil servants. *Journal of Epidemiology and Community Health*, 57(1), 46. doi:10.1136/jech.57.1.46
- Noone, J. H., Stephens, C., & Alpass, F. M. (2009). Preretirement Planning and Well-Being in Later Life: A Prospective Study. *Research on Aging*, 31(3), 295-317. doi:10.1177/0164027508330718

- Quine, S., Wells, Y., De Vaus, D., & Kendig, H. (2007). When choice in retirement decisions is missing: Qualitative and quantitative findings of impact on well-being. *Australasian Journal on Ageing*, 26(4), 173-179. doi:10.1111/j.1741-6612.2007.00251.x
- Quinn, K. M., Laidlaw, K., & Murray, L. K. (2009). Older peoples' attitudes to mental illness. *Clinical Psychology & Psychotherapy*, 16(1), 33-45. doi:10.1002/cpp.598
- Ramirez-Ruiz, B. (2016). Role of emotion regulation and internal ageism on adjustment and satisfaction with retirement. In: ProQuest Dissertations Publishing.
- Roberts, S. L., & Sedley, B. (2016). Acceptance and Commitment Therapy With Older Adults: Rationale and Case Study of an 89-Year-Old With Depression and Generalized Anxiety Disorder. *Clinical Case Studies*, 15(1), 53-67. doi:10.1177/1534650115589754
- Ross, K. (2018). Acceptance and commitment therapy with older adults and psychosocial adjustment to mild cognitive impairment. In: ProQuest Dissertations Publishing.
- Rost, A. D., Wilson, K., Buchanan, E., Hildebrandt, M. J., & Mutch, D. (2012). Improving Psychological Adjustment among Late-Stage Ovarian Cancer Patients: Examining the Role of Avoidance in Treatment. *Cognitive and Behavioral Practice*, 19(4), 508-517. doi:10.1016/j.cbpra.2012.01.003
- Scottish Government. (2013). The Scottish Health Survey 2012 - Volume 1 Main Report. In: APS Group.
- Slowey, L. (2014). Investigation of mindfulness, psychological inflexibility and valued living as potential moderators of the relationships between burden, distress and well-being in unpaid carers. In: ProQuest Dissertations Publishing.
- Smout, M., Davies, M., Burns, N., & Christie, A. (2014). Development of the Valuing Questionnaire (VQ). *Journal of Contextual Behavioral Science*, 3(3), 164-172. doi:10.1016/j.jcbs.2014.06.001

- Tennant, R., Hiller, L., Fishwick, R., Platt, S., Joseph, S., Weich, S., . . . Stewart-brown, S. (2007). The Warwick-Edinburgh Mental Well-being Scale (WEMWBS): development and UK validation. *vol. 5 , no. 1 , pp. 63 . DOI: 10.1186/1477-7525-5-63.*
- Thomson, V. (2016). Common Mental Health Problems in Later Life: Considering New Approaches to Meet the Challenges of an Ageing Population. In: ProQuest Dissertations Publishing.
- Van Solinge, H., & Henkens, K. (2008). Adjustment to and Satisfaction With Retirement: Two of a Kind? *Psychology and Aging, 23*(2), 422-434. doi:10.1037/0882-7974.23.2.422
- Vowles, K. E., McNeil, D. W., Gross, R. T., McDaniel, M. L., Mouse, A., Bates, M., . . . McCall, C. (2007). Effects of Pain Acceptance and Pain Control Strategies on Physical Impairment in Individuals With Chronic Low Back Pain. *Behavior Therapy, 38*(4), 412-425. doi:10.1016/j.beth.2007.02.001
- Wetherell, J. L., Petkus, A. J., Alonso-Fernandez, M., Bower, E. S., Steiner, A. R. W., & Afari, N. (2016). Age moderates response to acceptance and commitment therapy vs. cognitive behavioral therapy for chronic pain. *International Journal of Geriatric Psychiatry, 31*(3), 302-308. doi:10.1002/gps.4330
- White, R., Gumley, A., McTaggart, J., Rattrie, L., McConville, D., Cleare, S., & Mitchell, G. (2011). A feasibility study of Acceptance and Commitment Therapy for emotional dysfunction following psychosis. *Behaviour Research and Therapy, 49*(12), 901-907. doi:10.1016/j.brat.2011.09.003
- Wilier, J. B., Ottenbacher, L. K., & Coad, L. M. (1994). THE COMMUNITY INTEGRATION QUESTIONNAIRE: A Comparative Examination. *American Journal of Physical Medicine & Rehabilitation, 73*(2), 103-111. doi:10.1097/00002060-199404000-00006
- Wilson, K. G., Sandoz, E. K., Kitchens, J., & Roberts, M. (2010). The Valued Living Questionnaire: Defining and Measuring Valued Action within a Behavioral Framework. *Psychological Record, 60*(2), 249-272.

Wong, J. Y., & Earl, J. K. (2009). Towards an Integrated Model of Individual, Psychosocial, and Organizational Predictors of Retirement Adjustment. *Journal of Vocational Behavior*, 75(1), 1-13. doi:10.1016/j.jvb.2008.12.010

Zigmond, A. S., & Snaith, R. P. (1983). The Hospital Anxiety and Depression Scale. *Acta Psychiatrica Scandinavica*, 67(6), 361-370. doi:10.1111/j.1600-0447.1983.tb09716.x

Thesis Portfolio References

- A-Tjak, J. G. L., Davis, M. L., Morina, N., Powers, M. B., Smits, J. A. J., & Emmelkamp, P. M. G. (2015). A Meta-Analysis of the Efficacy of Acceptance and Commitment Therapy for Clinically Relevant Mental and Physical Health Problems. *Psychotherapy and Psychosomatics*, 84(1), 30-36. doi:10.1159/000365764
- Arch, J. J., Eifert, G. H., Davies, C., Vilardaga, J. C. P., Rose, R. D., & Craske, M. G. (2012). Randomized Clinical Trial of Cognitive Behavioral Therapy (CBT) versus Acceptance and Commitment Therapy (ACT) for Mixed Anxiety Disorders. *Journal of Consulting and Clinical Psychology*, 80(5), 750-765. doi:10.1037/a0028310
- Avdagic, E., Morrissey, S. A., & Boschen, M. (2014). A Randomised Controlled Trial of Acceptance and Commitment Therapy and Cognitive-Behaviour Therapy for Generalised Anxiety Disorder. *Behav. Change*, 31(2), 110-130. doi:10.1017/bec.2014.5
- Barnes, H., Parry, J., Lakey, J., & Platman, K. (2003). Forging a new future: the experiences and expectations of people leaving paid work over 50. In H. Barnes, J. Parry, J. Lakey, & K. Platman (Eds.), (Vol. 23, pp. 689-692).
- Bjelland, I., Dahl, A. A., Haug, T. T., & Neckelmann, D. (2002). The validity of the Hospital Anxiety and Depression Scale: An updated literature review. *Journal of Psychosomatic Research*, 52(2), 69-77. doi:10.1016/S0022-3999(01)00296-3
- Bohlmeijer, E. T., Fledderus, M., Rokx, T. A. J. J., & Pieterse, M. E. (2010a). Efficacy of an early intervention based on acceptance and commitment therapy for adults with depressive symptomatology: Evaluation in a randomized controlled trial. *Behaviour Research and Therapy*, 49(1), 62-67. doi:10.1016/j.brat.2010.10.003
- Bond, F. W., Hayes, S. C., Baer, R. A., Carpenter, K. M., Guenole, N., Orcutt, H. K., . . . Zettle, R. D. (2011a). Preliminary Psychometric Properties of the Acceptance and Action Questionnaire– II: A Revised Measure of Psychological Inflexibility and Experiential Avoidance. *Behavior Therapy*, 42(4), 676-688. doi:10.1016/j.beth.2011.03.007

- Bond, F. W., Hayes, S. C., & Barnes-Holmes, D. (2006). Psychological Flexibility, ACT, and Organizational Behavior. *Journal of Organizational Behavior Management*, 26(1-2), 25-54. doi:10.1300/J075v26n01_02
- Bossé, R., Aldwin, C. M., Levenson, M. R., & Workman-Daniels, K. (1991). How stressful is retirement? Findings from the Normative Aging Study. *Journal of gerontology*, 46(1), P9. doi:10.1093/geronj/46.1.P9
- Chauhan, D., Morris, P., & Ferreira, N. (2016). The effectiveness of acceptance and commitment therapy in enhancing values consistent behaviour: a systematic review. Unpublished thesis, University of Edinburgh (United Kingdom).
- Christie, A. M., Atkins, P. W. B., & Donald, J. N. (2017). The Meaning and Doing of Mindfulness: The Role of Values in the Link Between Mindfulness and Well-Being.(Report)(Author abstract). *Mindfulness*, 8(2), 368. doi:10.1007/s12671-016-0606-9
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (Second edition.. ed.). Hillsdale, N.J. ; Hove: Hillsdale, N.J. ; Hove : Lawrence Erlbaum.
- Craske, M. G., Niles, A. N., Burklund, L. J., Wolitzky-Taylor, K. B., Vilardaga, J. C. P., Arch, J. J., . . . Lieberman, M. D. (2014). Randomized Controlled Trial of Cognitive Behavioral Therapy and Acceptance and Commitment Therapy for Social Phobia: Outcomes and Moderators. *Journal of Consulting and Clinical Psychology*, 82(6), 1034-1048. doi:10.1037/a0037212
- Crawford, J. R., Henry, J. D., Crombie, C., & Taylor, E. P. (2001). Normative data for the HADS from a large non-clinical sample. *British Journal of Clinical Psychology*, 40(4), 429-434. doi:10.1348/014466501163904
- Dennis, R. E., Boddington, S. J. A., & Funnell, N. J. (2007). Self-report measures of anxiety: Are they suitable for older adults? *Aging & Mental Health*, 11(6), 668-677. doi:10.1080/13607860701529916
- Eilenberg, T., Fink, P., Jensen, J. S., Rief, W., & Frostholm, L. (2016). Acceptance and commitment group therapy (ACT-G) for health anxiety: a randomized controlled trial. *Psychological medicine*, 46(1), 103. doi:10.1017/S0033291715001579

- Eilenberg, T., Hoffmann, D., Jensen, J. S., & Frostholm, L. (2017). Intervening variables in group-based acceptance & commitment therapy for severe health anxiety. *Behaviour Research and Therapy*, 92, 24-31. doi:10.1016/j.brat.2017.01.009
- Elder, H. (1999). Does retirement planning affect the level of retirement satisfaction? *Financial Services Review*, 8(2), 117-127. doi:10.1016/S1057-0810(99)00036-0
- Far, S., Gharraee, B., Birashk, B., & Habibi, M. (2017). Effectiveness of Acceptance and Commitment Therapy and Cognitive Therapy in Patients With Major Depressive Disorder. *Iranian Journal of Psychiatry and Behavioral Sciences*, 11(4). doi:10.17795/ijpbs-3459
- Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses using G * Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, 41(4), 1149-1160. doi:10.3758/BRM.41.4.1149
- Field, A. P. (2009). *Discovering statistics using SPSS : (and sex and drugs and rock 'n' roll)* (Third edition.. ed.). Los Angeles, Calif. ; London: Los Angeles, Calif. ; London : SAGE Publications.
- Flaxman, P. E., & Bond, F. W. (2010). A randomised worksite comparison of acceptance and commitment therapy and stress inoculation training. *Behaviour Research and Therapy*, 48(8), 816-820. doi:10.1016/j.brat.2010.05.004
- Forman, E. M., Herbert, J. D., Moitra, E., Yeomans, P. D., & Geller, P. A. (2007). A Randomized Controlled Effectiveness Trial of Acceptance and Commitment Therapy and Cognitive Therapy for Anxiety and Depression. *Behavior Modification*, 31(6), 772-799. doi:10.1177/0145445507302202
- Forman, E. M., Shaw, J. A., Goetter, E. M., Herbert, J. D., Park, J. A., & Yuen, E. K. (2012). Long-Term Follow- Up of a Randomized Controlled Trial Comparing Acceptance and Commitment Therapy and Standard Cognitive Behavior Therapy for Anxiety and Depression. *Behavior Therapy*, 43(4), 801-811. doi:10.1016/j.beth.2012.04.004
- Francis, A. W., Dawson, D. L., & Golijani-Moghaddam, N. (2016). The development and validation of the Comprehensive assessment of Acceptance and Commitment Therapy processes

- (CompACT). *Journal of Contextual Behavioral Science*, 5(3), 134-145.
doi:10.1016/j.jcbs.2016.05.003
- Geerling, D. M., & Diener, E. (2018). Effect Size Strengths in Subjective Well-Being Research. *Applied Research in Quality of Life*. doi:10.1007/s11482-018-9670-8
- Gillanders, D. T., Bolderston, H., Bond, F. W., Dempster, M., Flaxman, P. E., Campbell, L., . . . Remington, B. (2014). The Development and Initial Validation of the Cognitive Fusion Questionnaire. *Behavior Therapy*, 45(1), 83-101. doi:10.1016/j.beth.2013.09.001
- Gloster, A., Klotsche, J., Hartling, S., Hummel, K. V., & Hoyer, J. (2011). Assessing Psychological Flexibility: What does it add above and beyond existing constructs?. *Psychological assessment*, 23, 970-982.
- Hacker, T., Stone, P., & Macbeth, A. (2015). Acceptance and Commitment Therapy – Do we know enough? Cumulative and Sequential meta- analyses of randomized controlled trials. *vol. 190* , pp. 551-565 . DOI: 10.1016/j.jad.2015.10.053.
- Hank, K. & Wagner, M. (2013). Parenthood, Marital Status, and Well-Being in Later Life: Evidence from SHARE. *Social Indicators Research*, 114(2). doi: 10.1007/s11205-012-0166-x
- Harris, R. (2006). Embracing Your Demons: an overview of Acceptance and Commitment Therapy. *Psychotherapy in Australia*, 12 (4).
- Harris, R. (2007). Advanced ACT Workshop Handout. Retrieved November 1, 2018 from: www.actmindfully.com.au; <https://www.scribd.com/document/73542639/2007-Advanced-ACT-Workshop-Handout>
- Harris, R. (2007). Acceptance and Commitment Therapy (ACT) introductory workshop handout. Retrieved November 1, 2018, from: <https://thehappinesstrap.com/upimages/2007%20Introductory%20ACT%20Workshop%20Handout%20-%20%20Russ%20Harris.pdf>
- Hayes, S. C. (2003). *Acceptance and commitment therapy: an experiential approach to behavior change*. New York; London: New York; London: Guilford Press.

- Hayes, S. C., Wilson, K. G., Gifford, E. V., Bissett, R., Piasecki, M., Batten, S. V., . . . Gregg, J. (2004). A Preliminary trial of twelve-step facilitation and acceptance and commitment therapy with polysubstance-abusing methadone-maintained opiate addicts. *Behavior Therapy*, 35(4), 667-688. doi:10.1016/S0005-7894(04)80014-5
- Hayes, S. (2007). Hello darkness: discovering our values by confronting our fears. *Psychotherapy Networker*, 31 (5), 46 - 52.
- Hesser, H., Gustafsson, T., Lunden, C., Henrikson, O., Fattahi, K., Johnsson, E., . . . Andersson, G. (2012). A Randomized Controlled Trial of Internet-Delivered Cognitive Behavior Therapy and Acceptance and Commitment Therapy in the Treatment of Tinnitus. *Journal of Consulting and Clinical Psychology*, 80(4), 649-661. doi:10.1037/a0027021
- Jason, A. M., Jill, R., Christopher, H., Derek, M. P., & Martin, G. E. (2015). Age and grip strength predict hand dexterity in adults. *PLoS ONE*, 10(2), e0117598. doi:10.1371/journal.pone.0117598
- Jenkins, J. (2006). Senior Citizens, Third Agers, Silver Surfers – But do they wear purple? Unpublished MSc thesis, University of Surrey and Pre-Retirement Association.
- Kashdan, T. B. & Rottenberg, K. K. (2010). Psychological Flexibility as a Fundamental Aspect of Health. *Clinical psychology Review*, 30, 865-878.
- Keir, L. (2015). Depression in later life: a review of the effectiveness and efficiency of psychological therapies and an empirical exploration of the predictors of attitudes to seeking psychological help and recognition of depression. In: ProQuest Dissertations Publishing.
- Kim, J.E. & Moen, P. (2001). Moving into retirement: Preparations and transitions in late midlife. In M.E. Lachman (Ed.) *Handbook of midlife development* (pp.487–527). Wiley: New York.
- Kim, J. E., & Moen, P. (2002). Retirement transitions, gender, and psychological well-being: a life-course, ecological model. *The Journals of Gerontology, Series B*, 57(3), P212. doi:10.1093/geronb/57.3.P212
- Kloep, M., & Hendry, L. B. (2006). Pathways into retirement: Entry or exit? *Journal of Occupational and Organizational Psychology*, 79(4), 569-593. doi:10.1348/096317905X68204

- Lachman, M. E. (2001). *Handbook of midlife development*. New York ; Chichester: New York ; Chichester : Wiley.
- Lappalainen, R., Lehtonen, T., Skarp, E., Taubert, E., Ojanen, M., & Hayes, S. C. (2007). The Impact of CBT and ACT Models Using Psychology Trainee Therapists: A Preliminary Controlled Effectiveness Trial. *Behavior Modification*, 31(4), 488-511.
doi:10.1177/0145445506298436
- Leung, C. S. Y., & Earl, J. K. (2012). Retirement Resources Inventory: Construction, Factor Structure and Psychometric Properties. *Journal of Vocational Behavior*, 81(2), 171-182.
doi:10.1016/j.jvb.2012.06.005
- Levin, M. E., Hildebrandt, M. J., Lillis, J., & Hayes, S. C. (2012). The Impact of Treatment Components Suggested by the Psychological Flexibility Model: A Meta-Analysis of Laboratory-Based Component Studies. *Behavior Therapy*, 43(4), 741-756.
doi:10.1016/j.beth.2012.05.003
- Lovibond, P. F., & Lovibond, S. H. (1995). The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. *Behaviour Research and Therapy*, 33(3), 335-343. doi:10.1016/0005-7967(94)00075-U
- Luoma, J. B. (2007). *Learning ACT : an acceptance & commitment therapy skills-training manual for therapists*. Oakland, CA: Oakland, CA : New Harbinger Publications.
- Mein, G., Martikainen, P., Hemingway, H., Stansfeld, S., & Marmot, M. (2003). Is retirement good or bad for mental and physical health functioning? Whitehall II longitudinal study of civil servants. *Journal of Epidemiology and Community Health*, 57(1), 46.
doi:10.1136/jech.57.1.46
- Noone, J. H., Stephens, C., & Alpass, F. M. (2009). Preretirement Planning and Well-Being in Later Life: A Prospective Study. *Research on Aging*, 31(3), 295-317.
doi:10.1177/0164027508330718

- Öst, L.-G. (2014). The efficacy of Acceptance and Commitment Therapy: An updated systematic review and meta-analysis. *Behaviour Research and Therapy*, 61(C), 105-121.
doi:10.1016/j.brat.2014.07.018
- Pallant, J. (2007). *SPSS survival manual : a step by step guide to data analysis using SPSS for Windows* (Third edition.. ed.). Maidenhead: Maidenhead : Open University Press.
- Quine, S., Wells, Y., De Vaus, D., & Kendig, H. (2007). When choice in retirement decisions is missing: Qualitative and quantitative findings of impact on well-being. *Australasian Journal on Ageing*, 26(4), 173-179. doi:10.1111/j.1741-6612.2007.00251.x
- Quinn, K. M., Laidlaw, K., & Murray, L. K. (2009). Older peoples' attitudes to mental illness. *Clinical Psychology & Psychotherapy*, 16(1), 33-45. doi:10.1002/cpp.598
- Ramirez-Ruiz, B. (2016). Role of emotion regulation and internal ageism on adjustment and satisfaction with retirement. In: ProQuest Dissertations Publishing.
- Roberts, S. L., & Sedley, B. (2016). Acceptance and Commitment Therapy With Older Adults: Rationale and Case Study of an 89-Year-Old With Depression and Generalized Anxiety Disorder. *Clinical Case Studies*, 15(1), 53-67. doi:10.1177/1534650115589754
- Roemer, L., Orsillo, S. M., & Salters-Pedneault, K. (2008). Efficacy of an Acceptance-Based Behavior Therapy for Generalized Anxiety Disorder: Evaluation in a Randomized Controlled Trial. *Journal of Consulting and Clinical Psychology*, 76(6), 1083-1089. doi:10.1037/a0012720
- Rolffs, J. L., Rogge, R. D., & Wilson, K. G. (2018). Disentangling Components of Flexibility via the Hexaflex Model: Development and Validation of the Multidimensional Psychological Flexibility Inventory (MPFI). *Assessment*, 25(4), 458-482. doi:10.1177/1073191116645905
- Ross, K. (2018). Acceptance and commitment therapy with older adults and psychosocial adjustment to mild cognitive impairment. In: ProQuest Dissertations Publishing.
- Rost, A. D., Wilson, K., Buchanan, E., Hildebrandt, M. J., & Mutch, D. (2012). Improving Psychological Adjustment among Late-Stage Ovarian Cancer Patients: Examining the Role of Avoidance in Treatment. *Cognitive and Behavioral Practice*, 19(4), 508-517.
doi:10.1016/j.cbpra.2012.01.003

- Ruiz Jiménez, F. J. (2012). Acceptance and Commitment Therapy versus Traditional Cognitive Behavioral Therapy: A Systematic Review and Meta- analysis of Current Empirical Evidence. *International journal of psychology and psychological therapy*, 12(3), 333-358.
- Savovic, J., Page, M., Elbers, R., Hrobjartsson, A., Boutron, I., Reeves, B., . . . Higgins, J. (2017). A revised tool for assessing risk of bias in randomized trials (RoB 2.0). *Trials*, 18(s1).
- Scottish Government. (2013). The Scottish Health Survey 2012 - Volume 1 Main Report. In: APS Group.
- Slowey, L. (2014). Investigation of mindfulness, psychological inflexibility and valued living as potential moderators of the relationships between burden, distress and well-being in unpaid carers. In: ProQuest Dissertations Publishing.
- Smout, M., Davies, M., Burns, N., & Christie, A. (2014). Development of the Valuing Questionnaire (VQ). *Journal of Contextual Behavioral Science*, 3(3), 164-172.
doi:10.1016/j.jcbs.2014.06.001
- Strosahl, K., Hayes, S., Wilson, K., & Gifford, E. (2004). An ACT Primer: Core therapy processes, intervention strategies and therapist competencies. In S. Hayes, & K. Strosahl (Eds.), *A Practical Guide to Acceptance and Commitment Therapy*. New York: Springer.
- Swain, J., Hancock, K., Hainsworth, C., & Bowman, J. (2013). Acceptance and commitment therapy in the treatment of anxiety: a systematic review. *Clinical psychology review*, 33(8), 965.
doi:10.1016/j.cpr.2013.07.002
- Tennant, R., Hiller, L., Fishwick, R., Platt, S., Joseph, S., Weich, S., . . . Stewart-brown, S. (2007). The Warwick-Edinburgh Mental Well-being Scale (WEMWBS): development and UK validation. *vol. 5 , no. 1 , pp. 63 . DOI: 10.1186/1477-7525-5-63. doi:https://doi.org/10.1186/1477-7525-5-63*
- Thomson, V. (2016). Common Mental Health Problems in Later Life: Considering New Approaches to Meet the Challenges of an Ageing Population. In: ProQuest Dissertations Publishing.
- Twohig, M. P., Hayes, S. C., Plumb, J. C., Pruitt, L. D., Collins, A. B., Hazlett-Stevens, H., & Woidneck, M. R. (2010). A Randomized Clinical Trial of Acceptance and Commitment Therapy Versus

- Progressive Relaxation Training for Obsessive-Compulsive Disorder. *Journal of Consulting and Clinical Psychology*, 78(5), 705-716. doi:10.1037/a0020508
- Tyndall, I., Waldeck, D., Pancani, L., Whelan, R., Roche, B., & Dawson, D. L. (2018). The Acceptance and Action Questionnaire-II (AAQ-II) as a measure of experiential avoidance: Concerns over discriminant validity. *Journal of Contextual Behavioral Science*. doi:10.1016/j.jcbs.2018.09.005
- Van Solinge, H., & Henkens, K. (2008). Adjustment to and Satisfaction With Retirement: Two of a Kind? *Psychology and Aging*, 23(2), 422-434. doi:10.1037/0882-7974.23.2.422
- Vowles, K. E., McNeil, D. W., Gross, R. T., McDaniel, M. L., Mouse, A., Bates, M., . . . McCall, C. (2007). Effects of Pain Acceptance and Pain Control Strategies on Physical Impairment in Individuals With Chronic Low Back Pain. *Behavior Therapy*, 38(4), 412-425. doi:10.1016/j.beth.2007.02.001
- Wetherell, J. L., Petkus, A. J., Alonso-Fernandez, M., Bower, E. S., Steiner, A. R. W., & Afari, N. (2016). Age moderates response to acceptance and commitment therapy vs. cognitive behavioral therapy for chronic pain. *International Journal of Geriatric Psychiatry*, 31(3), 302-308. doi:10.1002/gps.4330
- White, R., Gumley, A., McTaggart, J., Rattrie, L., McConville, D., Cleare, S., & Mitchell, G. (2011). A feasibility study of Acceptance and Commitment Therapy for emotional dysfunction following psychosis. *Behaviour Research and Therapy*, 49(12), 901-907. doi:10.1016/j.brat.2011.09.003
- Wilier, J. B., Ottenbacher, L. K., & Coad, L. M. (1994). THE COMMUNITY INTEGRATION QUESTIONNAIRE: A Comparative Examination. *American Journal of Physical Medicine & Rehabilitation*, 73(2), 103-111. doi:10.1097/00002060-199404000-00006
- Wilson, K. G., Sandoz, E. K., Kitchens, J., & Roberts, M. (2010). The Valued Living Questionnaire: Defining and Measuring Valued Action within a Behavioral Framework. *Psychological Record*, 60(2), 249-272.

- Wolgast, M. (2014). What Does the Acceptance and Action Questionnaire (AAQ- II) Really Measure? *Behavior Therapy*, 45(6), 831-839. doi:10.1016/j.beth.2014.07.002
- Wong, J. Y., & Earl, J. K. (2009). Towards an Integrated Model of Individual, Psychosocial, and Organizational Predictors of Retirement Adjustment. *Journal of Vocational Behavior*, 75(1), 1-13. doi:10.1016/j.jvb.2008.12.010
- Zargar, F., Farid, A. A. A., Atef-Vahid, M.-K., Afshar, H., & Omid, A. (2013). Comparing the effectiveness of acceptance-based behavior therapy and applied relaxation on acceptance of internal experiences, engagement in valued actions and quality of life in generalized anxiety disorder. *Journal of Research in Medical Sciences : The Official Journal of Isfahan University of Medical Sciences*, 18(2), 118-122.
- Zigmond, A. S., & Snaith, R. P. (1983). The Hospital Anxiety and Depression Scale. *Acta Psychiatrica Scandinavica*, 67(6), 361-370. doi:10.1111/j.1600-0447.1983.tb09716.x

Appendix A- Author guidelines for the Journal of Contextual Behavioral Science

From <https://www.elsevier.com/journals/journal-of-contextual-behavioral-science/2212-1447/guide-for-authors> (accessed 11/04/19)

Types of article

All manuscripts must clearly and explicitly be of relevance to CBS. You may find the JCBS article "Contextual Behavioral Science: creating a science more adequate to the challenge of the human condition" helpful in assessing whether your manuscript is likely to be of interest to readers of this journal.

Articles should fall into one of seven categories:

1. Empirical research (up to 6000 words)
2. Brief empirical reports (up to 3000 words)
3. Review articles (up to 10,000 words)
4. Conceptual articles (up to 6000 words)
5. In practice (up to 3000 words)
6. Practical innovations (up to 3000 words)
7. Professional interest briefs (up to 3000 words)

Word limits exclude references, tables and figures but include the abstract

1. Empirical research. JCBS welcomes manuscripts across a breadth of domains from basic behavioral science to clinical trials. Research concerning the measurement and testing of process of change is particularly welcome. Potential methodologies include but are not limited to: randomized controlled trials, single case experimental designs, cross-sectional and prospective cohort studies, mixed-methods designs, small scale analog studies. Papers reporting null findings are also welcome if their methodology is sound and their power sufficient. Authors of such papers will need to emphasize the implications of their findings for future research and practice.

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Engle, E.K., Cash, T.F., & Jarry, J.L. (2009, November). The Body Image Behaviours Inventory-3: Development and validation of the Body Image Compulsive Actions and Body Image Avoidance Scales. Poster session presentation at the meeting of the Association for Behavioural and Cognitive Therapies, New York, NY.

Supplementary material

Supplementary material such as applications, images and sound clips, can be published with your article to enhance it. Submitted supplementary items are published exactly as they are received (Excel or PowerPoint files will appear as such online). Please submit your material together with the article and supply a concise, descriptive caption for each supplementary file. If you wish to make changes to supplementary material during any stage of the process, please make sure to provide an updated file. Do not annotate any corrections on a previous version. Please switch off the 'Track Changes' option in Microsoft Office files as these will appear in the published version.

Appendix B - Author guidelines for the Journal of Psychology and Aging

From <https://www.apa.org/pubs/journals/pag/?tab=4> (accessed 11/04/19)

Manuscript Preparation

Prepare manuscripts according to the [Publication Manual of the American Psychological Association \(6th edition\)](#). Manuscripts may be copyedited for bias-free language (see Chapter 3 of the *Publication Manual*).

Review APA's [Journal Manuscript Preparation Guidelines](#) before submitting your article.

Double-space all copy. Other formatting instructions, as well as instructions on preparing tables, figures, references, metrics, and abstracts, appear in the *Manual*. Additional guidance on APA Style is available on the [APA Style website](#).

Length

Articles

Articles do not typically exceed 8,000 words, excluding references, tables, and figures. Shorter manuscripts are equally welcome.

Articles exceeding the 8,000 word limit may be considered if they offer an especially novel theoretical framework, or complex methodology or statistical approach that requires more extensive exposition.

Brief Reports

The Brief Report format is reserved for particularly "crisp," theoretically noteworthy contributions that meet the highest methodological standards.

Brief reports are typically no longer than 3,500 words, excluding references, tables, and figures, and include no more than two tables or figures.

Papers in this format differ in length from regular articles, but not in rigor.

Below are additional instructions regarding the preparation of display equations, computer code, and tables.

Title Page

The first manuscript page is a title page, which includes a title of no more than 12 words, the author byline and institutional affiliation(s) where the work was conducted, a running head with a maximum of 50 characters (including spaces), and the author note.

Abstract and Keywords

All manuscripts must include an abstract typed on a separate page. After the abstract, please supply up to five keywords or brief phrases.

For regular articles, abstracts are no longer than 250 words; for brief reports, no longer than 100 words.

References

List references in alphabetical order. Each listed reference should be cited in text, and each text citation should be listed in the References section.

Examples of basic reference formats:

- **Journal Article:**
Hughes, G., Desantis, A., & Waszak, F. (2013). Mechanisms of intentional binding and sensory attenuation: The role of temporal prediction, temporal control, identity prediction, and motor prediction. *Psychological Bulletin*, 139, 133–151.
<http://dx.doi.org/10.1037/a0028566>
- **Authored Book:**
Rogers, T. T., & McClelland, J. L. (2004). *Semantic cognition: A parallel distributed processing approach*. Cambridge, MA: MIT Press.
- **Chapter in an Edited Book:**
Gill, M. J., & Sypher, B. D. (2009). Workplace incivility and organizational trust. In P. Lutgen-Sandvik & B. D. Sypher (Eds.), *Destructive organizational communication: Processes, consequences, and constructive ways of organizing* (pp. 53–73). New York, NY: Taylor & Francis.

Figures

Graphics files are welcome if supplied as Tiff or EPS files. Multipanel figures (i.e., figures with parts labeled a, b, c, d, etc.) should be assembled into one file.

The minimum line weight for line art is 0.5 point for optimal printing.

For more information about acceptable resolutions, fonts, sizing, and other figure issues, [please see the general guidelines](#).

When possible, please place symbol legends below the figure instead of to the side.

APA offers authors the option to publish their figures online in color without the costs associated with print publication of color figures.

The same caption will appear on both the online (color) and print (black and white) versions. To ensure that the figure can be understood in both formats, authors should add alternative wording (e.g., "the red (dark gray) bars represent") as needed.

For authors who prefer their figures to be published in color both in print and online, original color figures can be printed in color at the editor's and publisher's discretion provided the author agrees to pay:

- \$900 for one figure
- An additional \$600 for the second figure
- An additional \$450 for each subsequent figure

Additional instructions for equations, computer code, and tables follow:

Display Equations

We strongly encourage you to use MathType (third-party software) or Equation Editor 3.0 (built into pre-2007 versions of Word) to construct your equations, rather than the equation support that is built into Word 2007 and Word 2010. Equations composed with the built-in Word 2007/Word 2010 equation support are converted to low-resolution graphics when they enter the production process and must be rekeyed by the typesetter, which may introduce errors.

To construct your equations with MathType or Equation Editor 3.0:

- Go to the Text section of the Insert tab and select Object.
- Select MathType or Equation Editor 3.0 in the drop-down menu.

If you have an equation that has already been produced using Microsoft Word 2007 or 2010 and you have access to the full version of MathType 6.5 or later, you can convert this equation to MathType by clicking on MathType Insert Equation. Copy the equation from Microsoft Word and paste it into the MathType box. Verify that your equation is correct, click File, and then click Update. Your equation has now been inserted into your Word file as a MathType Equation.

Use Equation Editor 3.0 or MathType only for equations or for formulas that cannot be produced as Word text using the Times or Symbol font.

Computer Code

Because altering computer code in any way (e.g., indents, line spacing, line breaks, page breaks) during the typesetting process could alter its meaning, we treat computer code differently from the rest of your article in our production process. To that end, we request separate files for computer code.

In Online Supplemental Material

We request that runnable source code be included as supplemental material to the article. For more information, visit [Supplementing Your Article With Online Material](#).

In the Text of the Article

If you would like to include code in the text of your published manuscript, please submit a separate file with your code exactly as you want it to appear, using Courier New font with a type size of 8 points. We will make an image of each segment of code in your article that exceeds 40 characters in length. (Shorter snippets of code that appear in text will be typeset in Courier New and run in with the rest of the text.) If an appendix contains a mix of code and explanatory text, please submit a file that contains the entire appendix, with the code keyed in 8-point Courier New.

Tables

Use Word's Insert Table function when you create tables. Using spaces or tabs in your table will create problems when the table is typeset and may result in errors.

Academic Writing and English Language Editing Services

Authors who feel that their manuscript may benefit from additional academic writing or language editing support prior to submission are encouraged to seek out such services at their host institutions, engage with colleagues and subject matter experts, and/or consider several [vendors that offer discounts to APA authors](#).

Please note that APA does not endorse or take responsibility for the service providers listed. It is strictly a referral service.

Use of such service is not mandatory for publication in an APA journal. Use of one or more of these services does not guarantee selection for peer review, manuscript acceptance, or preference for publication in any APA journal.

Submitting Supplemental Materials

APA can place supplemental materials online, available via the published article in the PsycARTICLES® database. Please see [Supplementing Your Article With Online Material](#) for more details.

Permissions

Authors of accepted papers must obtain and provide to the editor on final acceptance all necessary permissions to reproduce in print and electronic form any copyrighted work, including test materials (or portions thereof), photographs, and other graphic images (including those used as stimuli in experiments).

On advice of counsel, APA may decline to publish any image whose copyright status is unknown.

- [Download Permissions Alert Form \(PDF, 13KB\)](#)

Publication Policies

APA policy prohibits an author from submitting the same manuscript for concurrent consideration by two or more publications.

See also [APA Journals[®] Internet Posting Guidelines](#).

APA requires authors to reveal any possible conflict of interest in the conduct and reporting of research (e.g., financial interests in a test or procedure, funding by pharmaceutical companies for drug research).

- [Download Disclosure of Interests Form \(PDF, 38KB\)](#)

In light of changing patterns of scientific knowledge dissemination, APA requires authors to provide information on prior dissemination of the data and narrative interpretations of the data/research appearing in the manuscript (e.g., if some or all were presented at a conference or meeting, posted on a listserv, shared on a website, including academic social networks like ResearchGate, etc.). This information (2–4 sentences) must be provided as part of the Author Note.

Authors of accepted manuscripts are required to transfer the copyright to APA.

- For manuscripts **not** funded by the Wellcome Trust or the Research Councils UK [Publication Rights \(Copyright Transfer\) Form \(PDF, 83KB\)](#)
- For manuscripts funded by the Wellcome Trust or the Research Councils UK [Wellcome Trust or Research Councils UK Publication Rights Form \(PDF, 34KB\)](#)

Ethical Principles

It is a violation of APA Ethical Principles to publish "as original data, data that have been previously published" (Standard 8.13).

In addition, APA Ethical Principles specify that "after research results are published, psychologists do not withhold the data on which their conclusions are based from other competent professionals who seek to verify the substantive claims through reanalysis and who intend to use such data only for that purpose, provided that the confidentiality of the participants can be protected and unless legal rights concerning proprietary data preclude their release" (Standard 8.14).

APA expects authors to adhere to these standards. Specifically, APA expects authors to have their data available throughout the editorial review process and for at least 5 years after the date of publication.

Authors are required to state in writing that they have complied with APA ethical standards in the treatment of their sample, human or animal, or to describe the details of treatment.

- [Download Certification of Compliance With APA Ethical Principles Form \(PDF, 26KB\)](#)

The APA Ethics Office provides the full [Ethical Principles of Psychologists and Code of Conduct](#) electronically on its website in HTML, PDF, and Word format. You may also request a copy by [emailing](#) or calling the APA Ethics Office (202-336-5930). You may also read "Ethical Principles," December 1992, *American Psychologist*, Vol. 47, pp. 1597–1611.

Other Information

Visit the [Journals Publishing Resource Center](#) for more resources for writing, reviewing, and editing articles for publishing in APA journals.

Appendix C - Ethical approval document



09 October 2018

Mrs Frances Stuart
Trainee Clinical Psychologist
University of Edinburgh/NHS Fife
Lynebank Hospital
Halbeath Road
Dunfermline
KY11 4UW

Dear Mrs Stuart

Study title:	Value-directed living in older adults as a predictor of wellbeing, distress and adjustment to retirement.
REC reference:	18/EE/0292
Protocol number:	CAHSS1807/01
IRAS project ID:	243909

Thank you for your response of 9th October responding to the Proportionate Review Sub-Committee's request for changes to the documentation for the above study.

The revised documentation has been reviewed and approved by the sub-committee.

We plan to publish your research summary wording for the above study on the HRA website, together with your contact details. Publication will be no earlier than three months from the date of this favourable opinion letter. The expectation is that this information will be published for all studies that receive an ethical opinion but should you wish to provide a substitute contact point, wish to make a request to defer, or require further information, please contact please contact hra.studyregistration@nhs.net outlining the reasons for your request.

Under very limited circumstances (e.g. for student research which has received an unfavourable opinion), it may be possible to grant an exemption to the publication of the study.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation

as revised.

Conditions of the favourable opinion

The REC favourable opinion is subject to the following conditions being met prior to the start of the study.

Management permission must be obtained from each host organisation prior to the start of the study at the site concerned.

Management permission should be sought from all NHS organisations involved in the study in accordance with NHS research governance arrangements. Each NHS organisation must confirm through the signing of agreements and/or other documents that it has given permission for the research to proceed (except where explicitly specified otherwise).

Guidance on applying for HRA and HCRW Approval (England and Wales)/ NHS permission for research is available in the Integrated Research Application System, at www.hra.nhs.uk or at <http://www.rdforum.nhs.uk>.

Where a NHS organisation's role in the study is limited to identifying and referring potential participants to research sites ("participant identification centre"), guidance should be sought from the R&D office on the information it requires to give permission for this activity.

For non-NHS sites, site management permission should be obtained in accordance with the procedures of the relevant host organisation.

Sponsors are not required to notify the Committee of management permissions from host organisations.

Registration of Clinical Trials

All clinical trials (defined as the first four categories on the IRAS filter page) must be registered on a publically accessible database. This should be before the first participant is recruited but no later than 6 weeks after recruitment of the first participant.

There is no requirement to separately notify the REC but you should do so at the earliest opportunity e.g. when submitting an amendment. We will audit the registration details as part of the annual progress reporting process.

To ensure transparency in research, we strongly recommend that all research is registered but for non-clinical trials this is not currently mandatory.

If a sponsor wishes to request a deferral for study registration within the required timeframe, they should contact hra.studyregistration@nhs.net. The expectation is that all clinical trials will be registered, however, in exceptional circumstances non registration may be permissible with prior agreement from the HRA. Guidance on where to register is provided on the HRA website.

It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).

Ethical review of research sites

The favourable opinion applies to all NHS sites taking part in the study, subject to management permission being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" above).

Approved documents

The documents reviewed and approved by the Committee are:

Document	Version	Date
Copies of advertisement materials for research participants	2	07 September 2018
Copies of advertisement materials for research participants	2	07 September 2018
IRAS Application Form [IRAS_Form_14082018]		14 August 2018
Other [Client Information Letter – Clinical Trial Liability Insurance]		
Other [Certificate of Employers' Liability Insurance(a)]		
Other [PL Confirmation]		
Other [Client Information Letter - Professional Indemnity Insurance]		
Other [Protocol with tracked change comments]	2	07 September 2018
Other [cover letter to REC - response to provisional opinion]	1	27 September 2018
Participant information sheet (PIS)	2	07 September 2018
Participant information sheet (PIS) [Questionnaire Pack, containing the Participant Information Sheet- with tracked change comments.]	2	07 September 2018
Participant information sheet (PIS) [Questionnaire Pack (also contains participant information sheet and consent form)]	2	07 September 2018
Participant information sheet (PIS) [Questionnaire Pack (also contains participant information sheet and consent form) - tracked change comments]	2	07 September 2018
Research protocol or project proposal	2	07 September 2018
Summary CV for Chief Investigator (CI)		06 August 2018
Summary CV for supervisor (student research)		06 August 2018

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

After ethical review

Reporting requirements

The attached document "After ethical review – guidance for researchers" gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators
- Notification of serious breaches of the protocol

- Progress and safety reports
- Notifying the end of the study

The HRA website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

Feedback

You are invited to give your view of the service that you have received from the Research Ethics Service and the application procedure. If you wish to make your views known please use the feedback form available on the HRA website:

<http://www.hra.nhs.uk/about-the-hra/governance/quality-assurance>

We are pleased to welcome researchers and R & D staff at our RES Committee members' training days – see details at <http://www.hra.nhs.uk/hra-training/>

18/EE/0292	Please quote this number on all correspondence
------------	--

With the Committee's best wishes for the success of this project.

Yours sincerely

Dr Leslie Gelling
Chair

Email: nrescommittee.eastofengland-cambridgesouth@nhs.net

Enclosures: *"After ethical review – guidance for researchers"*

Copy to: *Charlotte Smith*

Dr Amanda Wood, NHS Fife

Appendix D – Management approval document

Medical Director

Hayfield House
Hayfield Road
KIRKCALDY
KY2 5AH



Ms Frances Stuart
Trainee Clinical Psychologist
Lynebank Hospital
DUNFERMLINE
KY11 4UW

12 October 2018

Our Ref 18-060 243909
18/EE/0292
Enquiries to Aileen Yell
E-mail aileenyell@nhs.net
Telephone 01383 623623 Ext
20940
Website www.nhsfife.org

Dear Ms Stuart

Project Title: Value-directed living as a predictor of wellbeing in older adults

Thank you for your application to carry out the above project. Your project documentation (detailed below) has been reviewed for resource and financial implications for NHS Fife and I am happy to inform you that NHS permission for the above research has been granted on the basis described in the application form, protocol and supporting documentation. The documents reviewed were:

Document	Version	Date
IRAS R&D Form	5.9.1	14 August 2018
REC provisional favourable opinion letter		3 September 2018
Protocol	2.0	7 September 2018
Participant Information Sheet	2.0	7 September 2018
Flyer	2.0	7 September 2018
Poster	2.0	7 September 2018
Questionnaire Pack	2.0	7 September 2018
REC final favourable opinion letter		9 October 2018

The terms of the approval state that you are the Principal Investigator authorised to undertake this study within NHS Fife.

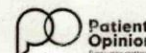
I note that the favourable ethical opinion applies to all NHS sites taking part in the study therefore no separate Site Specific Review is required in this case.

The sponsors for this study are University of Edinburgh. Please note that it is the responsibility of the Sponsor to ensure that adequate and appropriate insurance is maintained throughout the course of the study.

Details of our participation in studies will be included in annual returns we are expected to complete as part of our agreement with the Chief Scientist Office. Regular reports of the study require to be submitted. Your first report should be submitted to Dr A Wood, R&D Manager, R&D Department, Queen Margaret Hospital, Whitefield Rd, Dunfermline, KY12 OSU (Amanda.wood3@nhs.net) in 12 months time and subsequently at yearly intervals until the work is completed. A Lay Summary will also be required upon completion of the project.

In addition, approval is granted subject to the following conditions:-

^c NHS Fife was awarded the Carbon Trust Standard in February 2010 and is the first Scottish NHS Board to achieve this accolade.



All research activity must comply with the standards detailed in the UK Policy Framework for Health and Social Care Research <http://www.nhsresearchscotland.org.uk/uploads/tinymce/uk-policy-framework-health-social-care-research.pdf>, health & safety regulations, data protection principles, other appropriate statutory legislation and in accordance with Good Clinical Practice (GCP).

Any amendments which may subsequently be made to the study should also be notified to Aileen Yell, R&D Research Coordinator (aileen.yell@nhs.net), as well as the appropriate regulatory authorities. Notification should also be given of any new research team members post approval and/or any changes to the status of the project.

This organisation is required to monitor research to ensure compliance with the Research Governance Framework and other legal and regulatory requirements. This is achieved by random audit of research. You will be required to assist with and provide information in regard to monitoring and study outcomes (including providing recruitment figures to the R&D office as and when required).

As custodian of the information collated during this research project you are responsible for ensuring the security of all personal information collected in line with NHS Scotland IT Security Policies, until the destruction of this data. Permission is only granted for the activities for which a favourable opinion has been given by the REC (and which have been authorised by the MHRA where appropriate).

The research sponsor or the Chief Investigator or local Principal Investigator at a research site may take appropriate urgent safety measures in order to protect research participants against any immediate hazard to their health or safety. The R&D office (aileen.yell@nhs.net) should be notified that such measures have been taken. The notification should also include the reasons why the measures were taken and the plan for further action. The R&D office should be notified within the same time frame of notifying the REC and any other regulatory bodies.

I would like to wish you every success with your study and look forward to receiving a summary of the findings for dissemination once the project is complete.

Yours sincerely

DR FRANCES ELLIOT
Medical Director
NHS Fife

Cc : Aileen Yell, R&D Research Coordinator, NHS Fife, Queen Margaret Hospital, Dunfermline

Appendix E - University approval document

Re: project registration form

 DELETE  REPLY  REPLY ALL  FORWARD 



CLINICAL PSYCHOLOGY Research Ethics <submitting.ethics@ed.ac.uk>
Mon 15/10/2018 13:36

Mark as unread

To: STUART, Frances (NHS FIFE);

Cc: STUART Frances <s1687368@sms.ed.ac.uk>;

 1 attachment



Dear Frances,

Thank you for your email. As this has been approved via IRAS we simply need to log the application. If you need to make any changes to the protocol these would go through the REC, but I would appreciate if you could also copy University ethics into any correspondence.

Good luck with the project.

Best wishes,

Angus

Angus MacBeth
Lecturer in Clinical Psychology
Ethics Tutor

Appendix F - Participant information sheet

Wellbeing in Retirement – Participant Information Sheet and Survey – Version 2 – 07/08/18



Wellbeing in Retirement

The role of Psychological Factors



Questionnaire Pack

Introduction

An invitation to take part in a survey investigating predictors of wellbeing in retirement.

I'm a Trainee Clinical Psychologist at The University of Edinburgh, working as a clinician for NHS Fife. As part of my clinical training I am undertaking a research project to understand the impact of certain psychological factors on wellbeing in people who have retired. The purpose of the project is to find out which factors are the most important in promoting wellbeing. Together with other research, this could help clinicians develop more effective services for people in retirement.

Participant Information

You are invited to take part in the research study. Before you decide, it is very important that you have read the following information so that you understand what is involved. Please contact the research team to ask any questions you may have before making a decision. Thank you for reading this.

What is the purpose of this project?

This project will try to understand which psychological factors are important in predicting wellbeing among people who have retired. Although many see retirement as a positive life event, up to one third of retirees experience the transition as stressful or experience a decline in wellbeing after retirement. We are therefore interested in understanding more about the psychological factors that play a role in wellbeing after retirement. This information could be used to inform future care for people who have retired.

Why have I been invited to take part?

We are looking for a large group of people in retirement to take part. We would like to hear from people with a range of experiences, whether you retired recently or a long time ago, and whether you consider yourself to have good wellbeing or have found retirement more difficult. You are eligible to take part in the study if:

- You have retired from part-time or full-time paid employment.
- If you have continued some form of employment, this does not exceed six hours per week.
- You are 50 years old or above.
- You understand English.
- You can give consent to participate in the project. (For the purpose of study participation, this means that you have the capacity to understand the information provided, and can use this information to make an informed decision about whether or not you wish to take part). If you have experienced a significant illness or injury

Participant Information Sheet – Section 2 of 3

that could prevent you from being able to give consent (examples might include neurological disorder or head injury) and are unsure whether this applies to you, please contact us to discuss.

Do I have to take part?

No. It is up to you to decide whether or not to take part. If after reading this information you decide not to take part, you do not need to complete the questionnaires. The pack can either be discarded or returned to us blank. Your decision will not affect the level of care you receive. Please note that as the survey does not collect any identifiable data, it will not be possible to identify individual responses to remove them from the study once questionnaire packs have been returned to us.

What will I need to do if I would like to take part?

To take part you will need to complete the consent form and questionnaire pack and return it to us. This involves answering a series of questions about yourself. The questions relate to various psychological factors, for instance finding out about values (what gives life meaning and purpose) and how you approach different experiences. There are also questions about your current level of wellbeing, mental health and life satisfaction in retirement.

The questionnaire pack takes around 20 minutes to complete. It is important that the questionnaires are as fully completed as possible, as questionnaires with missing data may need to be removed from the study. However, should any questions make you feel uncomfortable, please do leave it blank and move on to the next one.

What are the possible disadvantages and risks of taking part?

No serious risks have been identified for participants in the study. Some questions ask about your mental and emotional health, and there is a chance that some participants may find this distressing. Information about what to do and who to contact if you are affected by any of the questions included in the study is provided on the next page.

What are the possible benefits of taking part?

In the long term, we hope that the findings of the research will contribute to our understanding of what promotes wellbeing in retirement. This would enable us to provide better support for those who find retirement difficult.

What will happen to the results of the study?

At the close of the study, all participants will have access to a summary of the findings on the study website. The results will be written up for the researcher's thesis in the form of a

Participant Information Sheet – Section 3 of 3

journal article, which will be submitted for examination by the university. In the future, the article may also be published in a peer-reviewed journal and presented at conferences.

Is the data confidential?

Yes. There will not be any identifiable information taken, meaning that the data is anonymous.

In line with policy, this data will be stored at the University of Edinburgh policy for 10 years, after which it will be destroyed.

Who is organising the research and why?

Frances Stuart is a Trainee Clinical Psychologist working as a clinician in NHS Fife while studying for a Doctorate in Clinical Psychology at The University of Edinburgh. This research is the largest piece of work involved in this qualification. An experienced academic researcher from the university is supervising this project. The Cambridge South Research Ethics Committee has revised and approved the study. Ethical approval has also been obtained from the University of Edinburgh and the Fife Health and Social Care Partnership Research and Development Committee.

If you have any further questions about the study please contact Frances Stuart at NHS Fife on 01334 696336 or email at: frances.stuart@nhs.net.

If you would like to discuss this study with someone independent of the study team, please contact: Tara Graham, Research and Development Psychologist: 01334 696336 / NHS Fife Department of Clinical Psychology, Stratheden Hospital, Cupar, Fife, KY15 5RR.

If you wish to make a complaint about the study please contact the University of Edinburgh's Research Governance team via email at: regov@accord.scot.

I know of other people who might be interested in taking part. Can I pass this information on to them?

Please do! We would be delighted to hear from anyone who meets the criteria identified above.

Thank you for taking the time to read this information.

Appendix G – Participant consent form

Wellbeing in Retirement – Participant Information Sheet and Survey – Version 2 – 07/09/18

Participant Consent

By ticking the box below you are agreeing with all of the following:

- I confirm that I have read and understand the information sheet (Version 2 / 7th September 2018) and have had the opportunity to consider the information and ask questions.
- I understand that my participation is voluntary and I have the right to withdraw from the study without penalty, by not returning a completed questionnaire pack.
- I understand that some of the questions will ask about my mental health and wellbeing, and that some participants may find this distressing.
- I understand that individuals from the regulatory authorities and from the Sponsor (the University of Edinburgh) or from the NHS Board may look at relevant sections of data collected during the study.
- I understand that no personal information will be collected or published as result of this project. I understand that my information will be published in an anonymous format as part of a larger sample.

I understand and give my consent to take part in the study:

☐ Yes

☐ No

Appendix H – Demographic questionnaire

Wellbeing in Retirement – Participant Information Sheet and Survey – Version 2 – 07/09/18

Questionnaires

Information about you

How would you describe your gender?

☐ Female

☐ Male

☐ Other (please tell us your preferred term) _____

What is your age group?

☐ 50 - 54

☐ 55 - 59

☐ 60 - 64

☐ 65 - 69

☐ 70 - 74

☐ 75 - 79

☐ 80+

What is your marital status?

☐ Single (never married)

☐ Married

☐ Widowed

☐ Divorced / Separated (not currently partnered)

☐ Partnered (other than married)

Please select the category that best describes your main pre-retirement employment:

- ☐ Manager
- ☐ Professional
- ☐ Technician or associate professional
- ☐ Clerical support worker
- ☐ Service and sales worker
- ☐ Skilled agricultural, forestry or fishery worker
- ☐ Craft or related trades worker
- ☐ Plant and machine operator or assembler
- ☐ Elementary occupation
- ☐ Armed forces occupation

How would you describe your main job status pre-retirement?

- ☐ Full-time employment
- ☐ Part-time employment
- ☐ Self-employed
- ☐ Other (please give details) _____

Please select your main reason for retiring:

- ☐ Reached retirement age
- ☐ Taking early retirement
- ☐ Voluntary redundancy
- ☐ Medical retirement
- ☐ Choosing to retire past retirement age
- ☐ Other (please give details) _____

How many years ago did you retire?

- ☐ 0 - 4
- ☐ 5 – 9
- ☐ 10 - 14
- ☐ 15 – 19
- ☐ 20+

Which statement best describes your financial situation?

- ☐ 'I possess **very little/no** money to support my living expenses'
- ☐ 'I possess **limited / inadequate** money to support my living expenses'
- ☐ 'I possess **a moderate** amount of money to support my living expenses'
- ☐ 'I possess **a substantial** amount of money to support my living expenses'
- ☐ 'I possess **excess** money to support my living expenses'

Which statement best describes your physical health?

'I would consider my general health condition to be':

- ☐ Extremely poor
- ☐ Fairly poor
- ☐ Average
- ☐ Good
- ☐ Extremely good

Do you have a close friend with whom you confide?

- ☐ Yes
- ☐ No

How many times a month do you usually participate in the following activities outside your home?

-Leisure activities such as cinema, sports, restaurants, etc.

- ☐ Never
☐ 1-4 times
☐ 5 or more

-Visiting friends or relatives

- ☐ Never
☐ 1-4 times
☐ 5 or more

When you participate in leisure activities, do you usually do this alone or with others?

- ☐ Mostly alone
☐ Mostly with friends or family members

Are there other factors that have had a significant impact on your wellbeing in retirement that you would like to comment on? _____

How did you find out about this survey?

- ☐ Through a service or organisation where I receive care or support
☐ Through a service or organisation for leisure or educational activities
☐ Poster / flyer ☐ Other (please specify): _____

The remainder of the survey contains a set of questionnaires. You do not have to think too much to answer. In these questionnaires, spontaneous answers are more important.

Appendix I - Research proposal



Value Directed Living in Retirement
Protocol - Version 2 - 7th September 2018



The Impact of Value-Directed Living on Wellbeing in Retirement – Protocol

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Introduction

Retirement and Psychosocial Outcomes

Retirement is an important life event that marks the transition from one life stage to another. Research shows that although many see retirement as a positive life event, up to one third of retirees experience the transition as stressful or experience a decline in wellbeing after retirement (Bosse et al., 1991).

A number of factors have been found to influence the degree of adjustment to retirement such as gender, finances, health, marital status, educational level, and quality of social networks (Barnes et al., 2002; Kim & Moen – 2001, 2002). Three types of retirement experiences were identified by Kloep and Hendry (2006), marking different styles of how people react to the transition. These included 'high distress', 'work as a lifestyle' and 'life beyond work'. The 'high distress' group was by far the smallest group of individuals. Their problems did not result directly from retiring, but an accumulation of negative life experiences impacted on their ability to transition well through different life stages generally. The 'work as a lifestyle' group experienced considerable adjustment problems given that their sense of self and social connections were closely linked to their professional role. The 'life beyond work' group were the largest group. They often chose to retire early and generally adapted well to retirement as they were already involved in lots of activities and hobbies. They continued to lead structured and busy lives after retiring (Kleop & Hendry, 2006). Jenkins (2006) reported that many older adults are indeed involved in a variety of meaningful activities, but that for some, life circumstances makes this very difficult, e.g. having to care for a relative, financial hardship, poor health and reduced mobility.

Various models of retirement have been proposed. Wong and Earl (2009) developed a model whereby individual, psychosocial and organisational factors, such as demographic variables, health, work centrality and conditions of workforce exit were seen as key predictors of retirement adjustment. Perhaps surprisingly, from their sample of 394 retirees, only the individual and organisational factors were found to predict retirement adjustment. This led the authors to conclude that additional research is required to identify the psychosocial factors that may promote retirement adjustment (Wong & Earl, 2009).

Acceptance and Commitment Therapy

The Acceptance and Commitment Therapy (ACT) model proposes that not living according to one's values is associated with reduced wellbeing and higher levels of distress (Hayes, 2007). The ACT model defines values as "chosen qualities of purposive action" (Hayes & Strosahl, 2004, p10).

Committed action is described as the process of defining and completing goals in order to live in accordance with the identified values (Hayes et al., 2003). In ACT, processes such as mindfulness allow individuals to identify their core values and to live life in accordance with these, while acknowledging that there will be difficulties in doing so, therefore using psychological flexibility to help manage with difficult events.

Researchers have reported that value-directed living is associated with improved wellbeing and adjustment in a range of populations, such as caregivers (Slowey et al., 2013), people with somatic symptoms (Hesser et al., 2012), cancer patients (Rost et al., 2012), people with chronic pain (Vowles et al., 2007), people with symptoms of anxiety and depression (Forman et al., 2007), people experiencing psychosis (White et al., 2011), people with substance misuse difficulties (Hayes et al., 2004) and those experiencing stress (Flaxman & Bond, 2010).

Given the extensive evidence that ACT processes can help reduce distress in various populations, it would be helpful to know whether value-directed living plays a role in retirees' level of wellbeing and distress. Studies have investigated factors that are somewhat amenable to change, such as retirement planning (Elder & Rudolph, 1999; Noone et al., 2009), the context in which the retiree left the workforce (Quine et al., 2007) and mastery (Kim & Moen, 2001). However, there is little information about other malleable psychological factors such as those related to ACT.

The overall goal of ACT is to increase psychological flexibility, which is another variable being investigated in this study. Kashdan and Rottenberg (2010) define psychological flexibility as the ability to "recognize and adapt to various situational demands; shift mindsets or behavioural repertoires when these strategies compromise personal or social functioning; maintain balance among important life domains; and be aware, open, and committed to behaviours that are congruent with deeply held values".

The other ACT process being investigated in this study is cognitive defusion. This is a specific process whereby an individual changes their relationship with a thought or private event,

therefore reducing the believability and literal quality of the thought. For instance, rather than being 'fused' with the thought, the thought is experienced as merely a cognitive event, to the point that it no longer serves an important function (Hayes et al., 2006).

Rationale for Research

There is a small but growing body of evidence that supports the use of ACT treatments for older adults (Roberts & Sedley, 2015). Indeed some studies have found that older adults may actually make better use of ACT treatment than younger adults (Wetherell et al., 2015). However, no studies to our knowledge have specifically addressed the role of values or other ACT constructs in relation to the process of retirement or the experiences of retirees. If value directed living, psychological flexibility and cognitive defusion were found to predict wellbeing and adjustment in retirees, this information could be used to inform future interventions to help people in preparation for retirement, or to assist with managing the transition should difficulties be encountered. Given that retirement is an important life stage, and relatively high numbers of people do experience some degree of difficulty in adjusting to their new retired status, it is important that any psychological factors that may play a role in facilitating improved adjustment and wellbeing are investigated and identified.

Research Aims

The research aims to discover how well does value-directed living, a key ACT construct, predict wellbeing, distress and adjustment to retirement, relative to well-established predictors such as physical health, financial security, and social connections. It will also investigate whether two other ACT constructs: psychological flexibility and cognitive defusion are predictive of wellbeing in retirement, and the relative predictive strength of these variables. It further aims to discover whether the Valued Living Questionnaire and the Valuing Questionnaire are comparable, in terms of predictive power, given that they take different approaches in measuring value directed living. This would be important to know for the design of future research projects in this area.

Participants

Participants will be adults aged 50 or over who have retired from paid employment and are able to provide consent. As the survey questionnaires are not validated in other languages, individuals will also need to be able to read and understand English. The study will aim to recruit a minimum of 156 retirees.

Inclusion Criteria:

1. Men and women age 50 and over
2. Community-dwelling
3. Retired from part time or full time paid employment

4. Able to provide informed consent

Exclusion Criteria:

1. Non-English speakers or those who are otherwise unable to complete the questionnaires unaided
2. Resides in nursing or care home
3. Continuing to be involved in paid work for more than 6 hours a week

Design

This study will use a cross-sectional design to evaluate the association between the predictor variables: value-directed living, psychological flexibility and cognitive defusion, with the outcome variables: wellbeing, distress and adjustment to retirement. Please see below for details on the questionnaires proposed.

Recruitment

Individuals who have retired will be invited to take part in this study. As we hope to recruit participants from a broad spectrum of the community, a number of recruitment strategies are proposed. Questionnaire packs will be distributed in community services for the general public to pick up if interested (e.g. leisure centres and libraries). They will also be distributed in health services open to the general public (e.g. GP practice waiting areas). Third-sector organisations relevant to older adults (e.g. Fife Elderly Forum) will also be asked for permission to share information about the study with members through newsletters. Council services (e.g. day care services) will also be asked for permission to share information about the study with service users. A self-contained pack with the participant information, consent form, questionnaires, de-brief information and a free-post envelope will be made available to any interested individuals. Everyone who receives or picks up a pack is encouraged to take the pack home and to take time to think about the survey and ask any questions they may have before deciding whether to take part. It takes approximately twenty minutes to complete the questionnaires. Anyone who contacts the psychology department to request a pack can leave a message with their name and address to have a pack sent out. The email or telephone message would then be destroyed immediately after, with no record being retained.

Data collection method

Individuals who would like to take part will complete the questionnaire pack. The survey begins by gathering some generic information to obtain relevant demographic information including main pre-retirement occupation type and how many years since their retirement. Questionnaires measuring the following constructs will also be used:

Outcome variables:

1. Wellbeing

The Warwick-Edinburgh Mental Well-being Scale (WEMWBS; Tennant et al., 2007)

A fourteen item scale with five response categories. It is designed to measure positive psychological functioning including happiness, relaxation, confidence, agency, autonomy, energy, optimism and positive relationships. It is validated in both clinical and non-clinical populations.

2. Adjustment

Adjustment and Satisfaction with Retirement (Van Solinge & Henkens, 2008)

This seven item scale measures any difficulties the individual experienced in adjusting to retirement, and also contentment with retired life. High scores indicate lower adjustment problems and higher satisfaction with retirement.

3. Distress

Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983)

This fourteen item scale measures both anxiety (HADS-A) and depression (HADS-D). It has been found to have good internal consistency (Cronbach's alpha coefficient of .83 for HADS-A and .82 for HADS-D) and good to very good concurrent validity (Bjelland et al., 2002).

Predictor variables:

1. Value-directed living

Valued Living Questionnaire (VLQ; Wilson, et al., 2010)

This is a two-part scale designed to assess valued living. In the first part, participants rate the importance of ten life-domains, such as family, friendship and work. The second part then asks participants to rate how consistent their behaviour has been with the domains they identified as important. A composite score is calculated to identify how consistent a person's behaviours are with their values. The authors recommend calculating a VLQ composite score by multiplying the importance rating by the consistency rating for each domain, and then summing these amounts. The internal consistency of the valued living composite score was reported in one study as adequate (Cronbach's alpha coefficient of .65) and in another as good (.77), and the test-retest reliability coefficients ranged from .61 to .82 and .43 to .61 for importance and consistency respectively (Wilson et al., 2010).

Valuing Questionnaire (VQ; Smout et al., 2013)

This ten item scale was designed as a brief measure of valued living. It has been found to have good reliability and validity in clinical samples (Smout et al., 2013). The authors also report that the scale is able to explain additional variance in quality of life measures that similar

questionnaires do not. Consequently, it is thought that the scale may capture variation in valued living in groups of people without mental health difficulties. It therefore may be particularly relevant to research around preventative interventions or those otherwise aimed at non-clinical populations.

2. Psychological Flexibility

Acceptance and Action Questionnaire – second version (AAQ-II; Bond et al., 2011)

This ten item measure was designed to provide a score for psychological inflexibility. Although the ten-item AAQ-II measure has since been replaced with the 7-item AAQ-II, the newer version consists of only negatively worded items, which may be less suited to a non-clinical population. In the original version, participants are asked to rate items such as “It is OK if I remember something unpleasant” on a scale of one (“never true”) to seven (“always true”). Higher scores represent a higher level of psychological inflexibility. The original AAQ-II which will be used in this study is reported to have a Cronbach’s alpha of .87 (Bond et al, 2011).

3. Cognitive Defusion

Cognitive Fusion Questionnaire (CFQ; Gillanders et al., 2014)

This seven item questionnaire is designed to assess fusion with cognitions. According to the ACT model, being able to step back and observe thoughts from a distance is known as ‘cognitive defusion’. The opposite process is ‘cognitive fusion’, whereby behavior is overly influenced by thoughts. The authors report that there is likely to be some overlap with psychological inflexibility, given that the latter is thought to be a form of cognitive fusion. The measure is reported to have excellent internal consistency in community samples (Cronbach’s alpha of .90) and good test-retest reliability of .80 (Gillanders et al., 2014).

Analysis

The data will be analysed using SPSS. Hierarchical multiple regression will be used to assess how much variance (how strong a predictor) value-directed living, psychological flexibility and cognitive defusion account for in the outcomes of wellbeing, distress and adjustment, relative to key demographic variables. The study will run 3 regression analyses:

Predictor variables (block 1):

- VLQ
- VQ
- AAQ-II
- CFQ

Predictor variables (block 2):

- Physical health
- Financial security

-Social integration

Outcome variables:

- Regression 1: Wellbeing (WEMWBS)
- Regression 2: Distress (HADS)
- Regression 3: Adjustment to Retirement

Timeline

Ethics gained: **September 2018**

Data gathering: **September 2018 – October 2018**

Data analysis: **November 2018**

Write up: **December 2018 – February 2019**